2018

2018 Adult and Pediatric Statewide EMS Treatment Protocols

IOWA DEPARTMENT OF PUBLIC HEALTH
BUREAU OF EMERGENCY AND TRAUMA SERVICES
MARCH 2018

Contents

Introduction

Iowa Administrative Code 641 - Chapter 132: Emergency Medical Services—Service Program Authorization

132.8(3) Service program operational requirements. Ambulance and non-transport service programs shall:

b. Utilize department protocols as the standard of care. The service program medical director may make changes to the department protocols provided the changes are within the EMS provider's scope of practice and within acceptable medical practice. A copy of the changes shall be filed with the department.

132.9(2) The medical director's duties include, but need not be limited to:

a. Developing, approving and updating protocols to be used by service program personnel that meet or exceed the minimum standard protocols developed by the department.

Purpose

The completed protocol approval page allows for a physician medical director to implement the use of the *2018 Iowa Statewide EMS Treatment Protocols* for one or more service programs where they serve as the program's medical director.

Instructions

Print or type the service name in the space provided. Next select each service's corresponding service type and level of authorization. If the medical director makes any additions, subtractions, or other changes to the 2018 protocols the changes will need to be noted in the Protocol Revisions space and filed with the Department. This would include the addition, subtraction, or change of any medication listed within the 2018 protocols. If no changes are made to the 2018 protocols check the box for no changes. The service program will post the completed protocol approval document in the AMANDA folder.

Scope of Practice

The *Iowa Emergency Medical Care Provider Scope of Practice* document outlines the skills each level of certified EMS provider can perform. Some skills will require the approval of the service program's physician medical director as well as documentation of additional training. Iowa EMS providers may not perform skills outside of their identified scope of practice as documented in the *Iowa Emergency Medical Care Provider Scope of Practice*. The most current version of the Iowa Emergency Medical Care Provider Scope of Practice document can be viewed and downloaded from the Bureau's website at: http://idph.iowa.gov/bets/ems/scope-of-practice.

Recommendations

It is recommended that each service program maintain records that document the review/education of all staff members on the program's most current protocols and the most current version of *the Iowa Emergency Medical Care Provider Scope of Practice document*.

2018 Protocol Approval

Service(s) Name		Service Name	Service Name	Service Name	Service Name	Service Name
Service Type	Ambulance					
	Non transport					
Service's Level of Authorization	EMR					
	EMT					
	AEMT					
	Paramedic					

Pharmaceuticals

Check All Medications Carried by the Service *Medication kit should contain <u>only</u> medications approved by the service's Medical Director*		
OTC Medications	**Medications**	
☐ Aspirin	☐ Adenosine	☐ Lorazepam
☐ Activated Charcoal	☐ Albuterol	☐ Magnesium Sulfate
☐ Glucose Paste	☐ Amiodarone	☐ Midazolam
Patient Assisted Medications	☐ Atropine	☐ Morphine Sulfate
☐ Auto-injector Epinephrine	☐ Dextrose	☐ Naloxone
☐ Nitroglycerin	☐ Diazepam	☐ Nitroglycerin
☐ Inhaler	☐ Diphenhydramine	☐ Ondansetron
IV Fluids	☐ Dopamine	☐ Oxygen
☐ Normal Saline	☐ Epinephrine	☐ Procainamide
☐ Ringer's Lactate	☐ Fentanyl	☐ Sodium Bicarbonate
☐ 5% Dextrose	☐ Glucagon	☐ Thiamin
	☐ Lidocaine	☐ Vasopressin
Medications Added by Service's Medical Director		

2018 Protocol Approval

☐ No changes were made to the *2018 Iowa Statewide EMS Treatment Protocols*

OR

List below or attach copies of all changes made by the physician medical director to the *2018 Iowa Statewide EMS Treatment Protocols*

Page	Protocol Name	Changes Made

Additional Skills for the EMR, EMT, AEMT

Approval of these additional skills must be within the Service Program's Level of Authorization and the Iowa EMS Provider's Scope of Practice	Mark "Yes" if the skill is approved by the medical director to be performed by the identified certification level	Certification Level	Yes	No
	Pulse oximetry	EMR		
	Glucose monitor	EMT		
	Service carries auto-inject epi	EMT		
	Central line access	AEMT		
	CPAP	EMT, AEMT		

NOTE: Iowa's Scope of Practice document requires medical director approval and documentation of additional training for these skills. Service program must maintain documentation of the additional training

Medical Director Statement of Approval

As the physician medical director I have reviewed both the *2018 Iowa Statewide EMS Treatment Protocols* and the *Iowa Emergency Medical Care Provider Scope of Practice* document and approve the use of the skills, medications, and protocols with revisions as documented above for the authorized Iowa EMS program(s) listed within this document.

Medical Director's Printed Name	Signature	Date

IOWA EMS TREATMENT PROTOCOLS

Adult Treatment Protocols

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Initial Patient Care Protocol-Adult and Pediatrics **Revised 2018**

This protocol serves to reduce the need for extensive reiteration of basic assessment and other considerations in every protocol.

Assessment

1. Assess scene safety
    a. Evaluate for hazards to EMS personnel, patient, bystanders
    b. Determine number of patients
    c. Determine mechanism of injury
    d. Request additional resources if needed and weigh the benefits of waiting for additional resources against rapid transport to definitive care
    e. Consider declaration of mass casualty incident if needed
2. Use appropriate personal protective equipment (PPE)
3. Wear high-visibility, retro-reflective apparel when deemed appropriate (e.g. operations at night or in darkness, on or near roadways)
4. Consider cervical spine stabilization and/or spinal care if trauma

Primary Survey

1. **A**irway**, B**reathing, **C**irculation is cited below; (although there are specific circumstances where **C**irculation, **A**irway, **B**reathing may be indicated such as cardiac arrest or major arterial bleeding)

    a. Airway (assess for patency and open the airway as indicated)

        i. Patient is unable to maintain airway patency—open airway
            1. Head tilt chin lift
            2. Jaw thrust
            3. Suction
            4. Consider use of the appropriate airway management adjuncts and devices:
                - oral airway,
                - nasal airway,
                - blind insertion, or supraglottic airway device,
                - laryngeal mask airway,
                - endotracheal tube
            5. For patients with laryngectomies or tracheostomies, remove all objects or clothing that may obstruct the opening of these devices, maintain the flow of prescribed oxygen, and reposition the head and/or neck

b. Breathing

i. Evaluate rate, breath sounds, accessory muscle use, retractions, patient positioning
ii. Administer oxygen as appropriate with a target of achieving 94-98% saturation for most acutely ill patients
iii. Apnea (not breathing) – open airway-see #4 above

c. Circulation

i. Control any major external bleeding (see Extremity Trauma/External Hemorrhage Management guideline)
ii. Assess pulse
1. If none – go to Cardiac Arrhythmia Protocol
2. Assess rate and quality of carotid and radial pulses

iii. Evaluate perfusion by assessing skin color and temperature
1. Evaluate capillary refill

d. Disability

i. Evaluate patient responsiveness: AVPU scale (Alert, Verbal, Pain, Unresponsive)
ii. Evaluate gross motor and sensory function in all extremities
iii. Check blood glucose in patients with altered mental status
iv. If acute stroke suspected – go to Stroke Protocol

e. Expose patient as appropriate to complaint

i. Be considerate of patient modesty
ii. Keep patient warm

Secondary Survey

1. The performance of the secondary survey should not delay transport in critical patients. Secondary surveys should be tailored to patient presentation and chief complaint. Secondary survey may not be completed if patient has critical primary survey problems

a. Head

i. Pupils
ii. Naso-oropharynx
iii. Skull and scalp

b. Neck

i. Jugular venous distension
ii. Tracheal position
iii. Spinal tenderness

c. Chest
    i. Retractions
    ii. Breath sounds
    iii. Chest wall deformity

d. Abdomen/Back
    i. Flank/abdominal tenderness or bruising
    ii. Abdominal distension

e. Extremities
    i. Edema
    ii. Pulses
    iii. Deformity

e. Neurologic
    i. Mental status/orientation
    ii. Motor/sensory

2. Obtain Baseline Vital Signs (An initial full set of vital signs is required: pulse, blood pressure, respiratory rate, neurologic status assessment) (see chart below)

    a. Neurologic status assessment: establish a baseline and note any change in patient neurologic status
        i. AVPU (Alert, Verbal, Painful, Unresponsive) or
        ii. Glasgow Coma Score (GCS)

    b. Patients with cardiac or respiratory complaints
        i. Pulse oximetry
        ii. 12-lead EKG should be obtained early in patients with cardiac or suspected cardiac complaints
        iii. Continuous cardiac monitoring, if available
        iv. Consider waveform capnography (essential for patients who require invasive airway management) or digital capnometry

    c. Patient with altered mental status
        i. Check blood glucose
        ii. Consider waveform capnography (essential for patients who require invasive airway management) or digital capnometry

    d. Stable patients should have at least two sets of pertinent vital signs. Ideally, one set should be taken shortly before arrival at receiving facility

    e. Critical patients should have pertinent vital signs frequently monitored

3. Obtain OPQRST history:

    a. **O**nset of symptoms (circumstances surrounding onset such as gradual, or sudden onset)
    b. **P**rovocation – location; any exacerbating or alleviating factors
    c. **Q**uality of pain

d. **R**adiation of pain
e. **S**everity of symptoms – pain scale
f. **T**ime of onset and circumstances around onset

4. Obtain SAMPLE history:

a. **S**ymptoms
b. **A**llergies – medication, environmental, and foods
c. **M**edications – prescription and over-the-counter; bring containers to ED if possible
d. **P**ast medical history
    i. look for medical alert tags, portable medical records, advance directives
    ii. look for medical devices/implants (some common ones may be dialysis shunt, insulin pump, pacemaker, central venous access port, gastric tubes, urinary catheter)
e. **L**ast oral intake
f. **E**vents leading up to the 911 call

Treatment and Interventions

1. Administer oxygen as appropriate with a target of achieving 94-98% saturation

2. Tier with an appropriate service if advanced level of care or assistance is needed and can be accomplished in a timely manner

3. Place appropriate monitoring equipment as dictated by assessment, within scope of practice – these may include:

a. Continuous pulse oximetry
b. Cardiac rhythm monitoring
c. Waveform capnography or digital capnometry
d. Carbon monoxide assessment

4. If within scope of practice, establish vascular access if indicated or in patients who are at risk for clinical deterioration.

a. If IO is to be used for a conscious patient, consider the use of 0.5 mg/kg of lidocaine 0.1mg/mL with slow push through IO needle to a maximum of 40 mg to mitigate pain from IO medication administration

5. Monitor pain scale if appropriate

6. Reassess patient

Patient Safety Considerations

1. Routine use of lights and sirens is not warranted

2. Even when lights and sirens are in use, always limit speeds to level that is safe for the emergency vehicle being driven and road conditions on which it is being operated

3. Be aware of legal issues and patient rights as they pertain to and impact patient care (e.g. patients with functional needs or children with special healthcare needs)

4. Be aware of potential need to adjust management based on patient age and comorbidities, including medication dosages

5. The maximum weight-based dose of medication administered to a pediatric patient should not exceed the maximum adult dose except where specifically stated in a patient care guideline

6. Direct medical control should be contacted when mandated or as needed

Key Considerations

Pediatrics: Use an accurate weight or length-based assessment tool (length-based tape or other system) to estimate patient weight and guide medication therapy and adjunct choices.

a. The pediatric population is generally defined by those patients who weigh up to 40 kg or up to 14-years of age, whichever comes first

b. Consider using the pediatric assessment triangle (appearance, work of breathing, circulation) when first approaching a child to help with assessment.

Geriatrics: The geriatric population is generally defined as those patients who are 65 years old or more.

a. In these patients, as well as all adult patients, reduced medication dosages may apply to patients with renal disease (i.e. on dialysis or a diagnosis of chronic renal insufficiency) or hepatic disease (i.e. severe cirrhosis or end-stage liver disease)

Co-morbidities: reduced medication dosages may apply to patients with renal disease (i.e. on dialysis or a diagnosis of chronic renal insufficiency) or hepatic disease (i.e. severe cirrhosis or end-stage liver disease).

Normal Vital Signs

Age	Pulse	Respiratory Rate	Systolic BP
Preterm less than 1 kg	120-160	30-60	36-58
Preterm 1 kg	120-160	30-60	42-66
Preterm 2 kg	120-160	30-60	50-72
Newborn	120-160	30-60	60-70
Up to 1 year	100-140	30-60	70-80
1-3 years	100-140	20-40	76-90
4-6 years	80-120	20-30	80-100
7-9 years	80-120	16-24	84-110
10-12 years	60-100	16-20	90-120
13-14 years	60-90	16-20	90-120
15 years or older	60-90	14-20	90-130

Glasgow Coma Scale

ADULT GLASGOW COMA SCALE		**PEDIATRIC GLASGOW COMA SCALE**	
Eye Opening (4)		**Eye Opening (4)**	
Spontaneous	4	Spontaneous	4
To Speech	3	To Speech	3
To Pain	2	To Pain	2
None	1	None	1
Best Motor Response (6)		**Best Motor Response (6)**	
Obeys Commands	6	Spontaneous Movement	6
Localizes Pain	5	Withdraws to Touch	5
Withdraws from Pain	4	Withdraws from Pain	4
Abnormal Flexion	3	Abnormal Flexion	3
Abnormal Extension	2	Abnormal Extension	2
None	1	None	1
Verbal Response (5)		**Verbal Response (5)**	
Oriented	5	Coos, Babbles	5
Confused	4	Irritable Cry	4
Inappropriate	3	Cries to Pain	3
Incomprehensible	2	Moans to Pain	2
None	1	None	1
Total		**Total**	

ABDOMINAL PAIN (NON-TRAUMATIC)

Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Give nothing by mouth

ADVANCED CARE GUIDELINES

b) Consider a fluid bolus if indicated
c) Consider pain and nausea control

ALTERED MENTAL STATUS

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Obtain blood glucose

b) If conscious & able to swallow, administer glucose 15 gm by mouth

ADVANCED CARE GUIDELINES

c) If blood sugar less than 60 mg/dL, administer D50 12.5 - 25 gm IV
d) If no vascular access, administer glucagon 1 mg IM
e) Evaluate the need for naloxone 0.2-1.0 mg IV/IO or intranasal. May repeat dosage in 3 minutes
f) Evaluate the need for intubation

AMPUTATED PART

Reviewed 2018

1. Follow initial patient care protocol
2. Follow Trauma protocol if indicated

BASIC CARE GUIDELINES

a) Locate amputated part if possible

b) Wrap amputated part in saline moistened gauze

c) Place wrapped amputated part in empty plastic bag

d) Place the plastic bag with the amputated part in a water and ice mixture

e) Do not use ice alone or dry ice

f) Label with patient name, the date, and time

g) Make sure the part is transported with the patient, if possible

ASTHMA AND COPD

Revised 2016

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) If patient has a physician prescribed hand-held metered dose inhaler:

   - Assist patient in administering a single dose if they have not done so already
   - Reassess patient and assist with second dose if necessary per medical direction

b) Evaluate the need for CPAP, if available

ADVANCED CARE GUIDELINES

c) Administer bronchodilator via nebulizer, repeat as needed

d) Evaluate the need for CPAP, if available

e) Evaluate the need for airway management.

BEHAVIORAL EMERGENCIES

Revised 2017

1. Follow initial patient care protocol

2. If there is evidence of immediate danger, protect yourself and others by summoning law enforcement to help ensure safety

BASIC CARE GUIDELINES

a) Consider medical or traumatic causes of behavior problems

b) Keep environment calm

ADVANCED CARE GUIDELINES

c) For severe anxiety, consider a benzodiazepine such as:

- Diazepam 2mg IV every 5 minutes up to 10 mg maximum
  OR
- Diazepam 5-10mg IM

d) For excited delirium, consider medications such as:
- Ketamine 4 mg/kg IM
  OR
- Ziprasidone (Geodon) 10-20 mg IM

BURNS

Revised 2017

1. Follow initial patient care protocol
2. Continually monitor the airway for evidence of obstruction
3. Do not use any type of ointment, lotion, or antiseptic
4. Maintain normal patient temperature
5. Transport according to the Out-of-Hospital Trauma Destination Decision Protocol (Appendix B)

BASIC CARE GUIDELINES

a) Stop the burning process

b) Estimate percent of body surface area injured and depth of injury

c) If wound is less than 10% Body Surface Area, cool burn with Normal Saline

d) Remove smoldering clothing and jewelry and expose area

e) Cover the burned area with plastic wrap or a clean dry dressing

ADVANCED CARE GUIDELINES

f) Establish an IV of LR or NS. For severe burns, consider administration of 500 ml bolus

g) Contact medical control for further fluid administration

h) Refer to Pain Control protocol

Chemical Burns

BASIC CARE GUIDELINES

a) Brush off powders prior to flushing. Lint roller may also be used to remove powders prior to flushing

b) Immediately begin to flush with large amounts of water

c) Continue flushing the contaminated area when en route to the receiving facility

d) Do not contaminate uninjured areas while flushing

e) Attempt to identify contaminant

ADVANCED CARE GUIDELINES

f) Refer to Pain Control protocol

Toxin in Eye

BASIC CARE GUIDELINES

a) Flood eye(s) with lukewarm water and have patient blink frequently during irrigation. Use caution to not contaminate other body areas

b) Attempt to identify contaminant

ADVANCED CARE GUIDELINES

c) Establish a large bore IV if indicated and infuse as patient condition warrants

d) Refer to Pain Control protocol

Electrical Burns

BASIC CARE GUIDELINES

a) Treat soft tissue injuries associated with the burn with dry dressing

b) Treat for shock if indicated

ADVANCED CARE GUIDELINES

c) Refer to Pain Control protocol

CARDIAC ARRHYTHMIAS

Revised 2017

1. Follow initial patient care protocol

If No Pulse

BASIC CARE GUIDELINES

a) Perform high quality CPR immediately, apply AED and follow device prompts

b) Compression-only CPR is appropriate if unable to support airway while applying and using AED

c) May place appropriate airway if unable to adequately ventilate patient noninvasively, if does not interrupt compressions, or after return of spontaneous circulation

d) May apply mechanical compression device (if available) after ensuring high quality compressions and application of AED. Emphasis on minimizing interruption of compressions.

ADVANCED CARE GUIDELINES

e) Perform high quality CPR immediately, apply monitor and check rhythm as soon as possible

VENTRICULAR FIBRILLATION OR VENTRICULAR TACHYCARDIA

f) Defibrillate at manufacturer's specification, immediately resume CPR for two minutes
g) Evaluate and treat for underlying causes
h) Administer epinephrine 1:10,000 concentration 1 mg IV or IO every 3-5 minutes
i) Consider amiodarone for refractory pulseless V-Tach or V-Fib 300 mg IV or IO, repeat 150 mg in 5 minutes
j) Consider magnesium sulfate for Torsades de Pointes 1-2 g IV or IO, delivered over 5-20 minutes

ASYSTOLE/PEA

k) Evaluate for treatable causes
l) Administer epinephrine 1:10,000 concentration 1 mg IV or IO as soon as asystole or PEA is identified. Repeat every 3-5 minutes

(Cardiac Arrhythmias Continued)

Cardiac Arrhythmias if Pulse

BASIC CARE GUIDELINES

a) Follow- Chest Pain protocol

b) Assess and treat underlying causes

ADVANCED CARE GUIDELINES

BRADYCARDIA

c) If symptomatic, administer atropine 0.5 mg IV or IO every 3-5 minutes as needed to maximum dose of 3.0 mg

d) Initiate transcutaneous pacing if blood pressure less than 90 systolic, atropine unsuccessful or atropine administration not immediately available.
OR

e) Consider administering dopamine 5-20 mcg/kg/min IV or IO
OR

f) Consider administering epinephrine 2-10 mcg/min IV or IO

TACHYCARDIA (Symptomatic-Rates greater than 150)

g) If patient unstable:
Perform synchronized cardioversion (consider sedation)

h) If patient stable with wide QRS:
If regular and monomorphic, consider administration of adenosine 6 mg IV, may be repeated at 12 mg after two minutes
OR
Consider administration of amiodarone 150 mg over 10 minutes IV or IO

i) If patient is stable with narrow QRS
Perform vagal maneuvers
OR
Consider administration of adenosine 6 mg IV, may be repeated at 12 mg after two minutes

CHEST PAIN

Updated 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Place patient in position of comfort, loosen tight clothing and provide reassurance. If patient is complaining of shortness of breath, has signs of respiratory distress or pulse oximetry of less than 94%, titrate oxygen to symptom improvement or to maintain saturation of 94-99%.

b) If capability exists, obtain a 12-lead EKG and transmit to the receiving facility and/or medical control for interpretation as soon as possible. An initial management goal is to identify STEMI and transport the patient with cardiac symptoms to the facility most appropriate to needs.

c) Complete Fibrinolytic Therapy Checklist-Appendix F

d) If patient is alert and oriented and expresses no allergy to aspirin assist the patient by having them chew nonenteric aspirin 325 mg.

e) Evaluate if erectile dysfunction or pulmonary hypertension medications have been taken in the past 24-48 hours including: Sildenafil (Viagra, Revatio), Vardenafil (Levitra, Staxyn), or Avanafil (Stendra), Tadalafil (Cialis, Adcirca).

f) If the patient has not taken any of the medications in (d) in the last 48 hours and has a systolic blood pressure of 90 mmHg or above, assist the patient self-administer one dose of nitroglycerin (patient's nitro dose only).

g) Repeat one dose of nitroglycerin in 5 minutes if pain continues, systolic blood pressure is 90 mmHg or above, up to a maximum of three doses.

h) Reassess patient and vital signs following each dose of nitroglycerin.

i) If transport initiated to a non-PCI Facility-Complete fibrinolytic therapy checklist found in Appendix F.

ADVANCED CARE GUIDELINES

j) Monitor EKG-evaluate for evidence of STEMI and treat dysrhythmias.

k) If STEMI is present, determine appropriate destination.
   - If transport time to a facility capable of providing emergency PCI care is 60 minutes or less, it is recommended that all of these patients be transported directly to the emergency PCI capable facility.
   - If transport time to a facility capable of providing emergency PCI care is between 60 - 90 minutes, transport to the PCI capable facility should be considered.

l) Establish IV access at TKO rate unless otherwise ordered or indicated.

m) Administer nitroglycerin (tab or spray) 0.4 mg sublingually if systolic blood pressure 90 mmHg or above for symptoms of chest pain or atypical cardiac pain. Repeat one dose in 5 minutes if pain continues and systolic blood pressure is 90 mmHg or above up to a maximum of three doses.

n) If pain continues after administration of nitroglycerin and systolic blood pressure remains above 90 mmHg administer:
   - Morphine 2-4 mg IV may repeat every 5 minutes
     OR
   - Fentanyl 25-50 mcg IV may repeat every 5 minutes
     OR
   - Patient administered nitrous oxide-observe for altered mentation and ability to self-administer

CHILDBIRTH

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

Normal Delivery

a) If delivery is imminent with crowning, commit to delivery on site and contact medical control.

b) If the amniotic sac does not break, or has not broken, use a clamp to puncture the sac and push it away from the infant's head and mouth as they appear.

c) Clamp cord with 2 clamps and cut the cord between the clamps.

d) For newborn management, see newborn resuscitation protocol.

Abnormal Delivery

Breech Delivery (Buttocks Presentation)

a) Allow spontaneous delivery.

b) Support infant's body as it's delivered.

c) If head delivers spontaneously, proceed as in Section I (Normal Delivery).

d) If head does not deliver within 3 minutes, insert gloved hand into the vagina, keeping your palm toward baby's face; form a "V" with your fingers and push wall of vagina away from baby's face, thereby creating an airway for baby. Do not remove your hand until relieved by advanced EMS or hospital staff.

e) Contact medical control for any other issues.

CONGESTIVE HEART FAILURE

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Maintain oxygen saturation 94% - 99%

b) If capability exists, obtain a 12-lead EKG and transmit it to the receiving facility and/or medical control for interpretation prior to patient's arrival

c) Consider nitroglycerin (tab or spray) 0.4 mg sublingually (patients nitro only) if systolic blood pressure 90 mmHg or above. May repeat every 3 to 5 minutes. Maximum of 3 doses.

Evaluate if Erectile Dysfunction or Pulmonary hypertension medications taken in the past 24 hours including: Sildenafil (Viagra, Revatio), Vardenafil (Levitra, Staxyn), or Avanafil (Stendra), Tadalafil (Cialis, Adcirca). Hold nitrates for 48 hours following the last dose

d) Reassess patient and vital signs after each dose of nitroglycerin

e) If capability exists, consider CPAP

ADVANCED CARE GUIDELINES

f) Monitor EKG and treat arrhythmias

g) Administer nitroglycerin (tab or spray) 0.4 mg sublingually if systolic blood pressure 90 mmHg or above. May repeat every 3 to 5 minutes. Maximum of 3 doses.

DETERMINATION OF DEATH-WITHHOLDING RESUSCITATIVE EFFORTS

Revised 2018

Follow initial patient care protocol

Resuscitation should be started on all patients who are found apneic and pulseless unless the following medical cause, traumatic injury or body condition clearly indicating biological death (irreversible brain death) such as:

- Signs of trauma are conclusively incompatible with life
  - Decapitation
  - Transection of the torso
  - 90% of the body surface area with full thickness burns
  - Massive crush injury
  - Apneic, pulseless and without other signs of life (movement, EKG activity, pupillary response)
- Cardiac and respiratory arrest with obvious signs of death including
  - Rigor mortis
  - Dependent lividity
- Physical decomposition of the body

OR

A valid DNR order (form, card, bracelet) or other actionable medical order (e.g. I-POLST form) present, when it:

- Conforms to the state specifications
- Is intact: it has not been cut, broken or shows signs of being repaired
- Displays the patient's name and the physician's name

If apparent death is confirmed, continue as follows:

a) The county Medical Examiner and law enforcement shall be contacted
b) When possible, contact Iowa Donor Network at 1-800-831-4131.
c) At least one EMS provider should remain at the scene until the appropriate authority is present
d) Provide psychological support for grieving survivors
e) Document the reason(s) no resuscitation was initiated
f) Preserve the crime scene if applicable

FROSTBITE

Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Remove the patient from the cold environment

b) Protect the cold injured extremity from further injury (manual stabilization)

c) Remove wet or restrictive clothing

d) Do not rub or massage

e) Do not re-expose to the cold

f) Remove jewelry

g) Cover with dry clothing or dressings

ADVANCED CARE GUIDELINES

h) Refer to pain control protocol

HEAT ILLNESS

Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Remove from the hot environment and place in a cool environment (back of air conditioned response vehicle)

b) Loosen or remove clothing

c) Place in recovery position

d) Initially cool patient by fanning and cool mist if available

e) Consider cooling patient with cold packs to neck, groin and axilla

f) If alert, stable, and not nauseated, you may have the patient slowly drink small sips of water or other fluids e.g. sports drinks

ADVANCED CARE GUIDELINES

g) Monitor EKG and treat dysrhythmias following the appropriate protocol(s)

HYPOTHERMIA

Updated 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Remove wet clothing

b) If able, check core temperature

c) Handle patient very gently

d) Cover patient with blankets

e) EKG if available

ADVANCED CARE GUIDELINES

f) Administer warm IV fluids if available, do not administer cold fluids

g) Monitor EKG and treat dysrhythmias

h) If body temp is confirmed or suspected to be below 86 degrees Fahrenheit

- ONLY give epinephrine every 8 minutes if indicated
- Defibrillation is indicated ONLY once
- Consider spacing other medications used for resuscitation

NAUSEA AND VOMITING

Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Limit oral intake to sips

ADVANCED CARE GUIDELINES

b) Consider fluid bolus IV/IO if evidence of hypovolemia and lung sounds are clear

h) If patient nauseated or is vomiting, consider anti-emetic medication such as ondansetron (Zofran) 4 mg IV or PO. May repeat x 1 after 5 minutes

PAIN CONTROL

Reviewed 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Attempt to manage all painful conditions:

- Splint extremity injuries
- Place the patient in a position of comfort

ADVANCED CARE GUIDELINES

b) Consider administration of pain medications for patients that have significant pain, do not have a decreased level of consciousness, are hemodynamically stable, and have oxygen saturations above 94%.

Morphine 2-4 mg via IV, repeated in 5 min
OR
- Fentanyl 25 to 50 mcg IV every 5 minutes
OR
- Ketamine 0.1-0.3 mg/kg IV or 0.5 mg/kg IM/IN
OR
- Nitrous Oxide per self-administration - observe for altered mentation before secondary doses and continued ability to self-administer.

c) For severe pain consider anxiolytic medication
- Midazolam 0.5-2.5 mg IV / IM repeated every 5 minutes as needed to a maximum of 5 mg
OR
- Diazepam 2-5 mg IV / IM repeated every 5 minutes as needed to a maximum of 10 mg
OR
- Lorazepam 2mg IV, repeated every 30 minutes as needed to a maximum of 4 mg.

d) The patient must have vital signs taken prior to each dose, after each dose, and be monitored closely.

e) After drug administration, reassess the patient using the appropriate pain scale

POISONING

Revised 2018

1. Follow initial patient care protocol

2. Identify contaminate and call Poison Control and follow directions given to provide care: 1-800-222-1222

3. Contact Medical Direction as soon as possible with information given by Poison Control and care given

BASIC CARE GUIDELINES

1. Attempt to identify substances ingested or exposed by interviewing witnesses. Try to establish the exact time of ingestion, as well as the amount and type of ingestion. Medication containers or chemical labels should be taken with you.

ADVANCED CARE GUIDELINES

Bradycardia with Unknown Overdose:

a. Consider Atropine 0.5 mg IV every 5 minutes as needed up to total dose of 3 mg.
b. Consider dopamine (Intropin) 5-15 mcg/kg/min
c. Consider transcutaneous pacemaker

Tachycardia with Unknown Overdose:

a. Provide IV fluid bolus with normal saline 1L
b. Consider benzodiazepine such as
    1. Midazolam 0.5-2.5 mg IV / IM repeated every 5 minutes as needed to a maximum of 5 mg
    OR
    2. Diazepam 2-5 mg IV / IM repeated every 5 minutes as needed to a maximum of 10 mg
    OR
    3. Lorazepam 2mg IV, repeated every 30 minutes as needed to a maximum of 4 mg. Use for long transports

c. AVOID lidocaine and beta-blockers, particularly Labetalol.
d. Consider Sodium Bicarbonate 1 mEq/kg IV for dysrhythmias refractory to benzodiazepines (especially those with a wide QRS complex or prolonged QT).
e. Cool patients presenting with agitation, delirium, seizure and elevated body temperature

Suspected Opioid Overdose:

f. Support ventilations via bag-valve-mask and oxygen while preparations are made for Naloxone (Narcan) administration
g. Initial dose of Naloxone (Narcan) is 0.4 to 2 mg IV over 15-30 seconds or 0.4 to 4 mg IM, SQ or IN. Repeated doses maybe required

Calcium Channel Blocker (Norvasc, Cardizem) or Beta Blocker (Atenolol, Lopressor, Inderal) Overdose:

h. Consider Calcium gluconate 10% [1 g/10 mL] 2 g IV over 5 minutes
    i. May repeat x 1 in 5 minutes if persistent EKG changes
    ii. Calcium therapy is contraindicated for patients taking digitalis
i. Consider Glucagon 1-3 mg slow IV push over 1-2 minutes, may repeat in 10-15 minutes if no response is seen

Digitalis Overdose:

j. Consider normal saline IV
k. Consider Atropine 0.5 mg IV every 5 minutes as needed up to total dose of 3 mg
l. Consider transcutaneous pacemaker

TCA (Elavil, Tofranil) Overdose:

m. Consider Sodium bicarbonate 50 ml [1 ampule] IV for wide complex QRS
n. Be cautious for seizures

POST RESUSCITATION WITH RETURN OF SPONTANEOUS CIRCULATION

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Maintain oxygen saturation between 94% - 99%

b) Attempt to maintain normal patient temperature

c) If available, obtain blood glucose and treat per altered mental status protocol

d) If capability exists, obtain a 12-lead EKG and transmit it to the receiving facility and/or medical control for interpretation prior to patient's arrival

ADVANCED CARE GUIDELINES

e) If available, perform waveform capnography, maintaining PETCO2 35-40 mm Hg

f) Treat hypotension per shock protocol

SEIZURE

Revised 2017

1. Follow initial patient care protocol

Active Seizure

BASIC CARE GUIDELINES

a) Protect airway

ADVANCED CARE GUIDELINES

b) Administer benzodiazepine such as:
   - Valium 2 mg IV push until seizure stops or maximum dose of 10 mg is given

   OR
   - Lorazepam 1 mg IV push, until the seizure stops or until maximum dose of 10 mg is given

   OR
   - Midazolam 2 mg IV push until the seizure stops or until maximum dose of 10 mg is given

c) Check blood glucose level, if available, and treat hypoglycemia if present

Post Seizure

BASIC CARE GUIDELINES

a) Protect airway

b) Check blood sugar, if available, and treat hypoglycemia if present per altered mental status protocol

ADVANCED CARE GUIDELINES

c) Consider thiamine 100 mg IM

SPINAL CARE

Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

1. Patient Presentation:
   a) This protocol is intended for patients who present with a traumatic mechanism of injury.
   b) Spinal motion restriction is contraindicated for patients who have penetrating trauma who do not have a neurological deficit.
2. Patient Management:
   a) Assessment while maintaining spinal alignment:
      - mental status,
      - neurological deficits,
      - spinal pain,
      - tenderness,
      - evidence of intoxication,
      - tenderness on palpation or deformities.
   b) Treatment and Interventions:

      Apply cervical restriction if there is any of the following:
      - Patient complains of neck pain.
      - Any neck tenderness on palpation.
      - Any abnormal mental status, including extreme agitation, or neurological deficit.
      - Any evidence of alcohol or drug intoxication
      - There are other severe or painful injuries present.
      - Any communication barrier that prevents accurate assessment.

SPINAL CARE CONTINUED

c) Spinal and cervical motion restriction and a long spine board, full body vacuum splint, scoop stretcher, or similar device if:
   - Patient complains of midline back pain
   - Any midline back tenderness

Note 1: Distracting injuries or altered mental status does not necessitate long spine board use.

Note 2: Patients should not routinely be transported on long boards, unless the clinical situation warrants long board use. An example of this may be facilitation of multiple extremity injuries or an unstable patient where removal of a board will delay transport and/or other treatment priorities. In these rare situation, long boards should be padded or have a vacuum mattress applied to minimize secondary injury to the patient.

SHOCK

Revised 2016

1. Follow initial patient care protocol

2. Maintain oxygen saturation between 94% - 99%

Hypovolemic *External* Bleeding

BASIC CARE GUIDELINES

a) Avoid further heat loss

b) Splint extremities as needed

c) Follow Hemorrhage Control Protocol
   - Control bleeding with direct pressure. Large gaping wounds may need application of a bulky sterile gauze dressing and direct pressure by hand
   - Consider application of tourniquet if unable to control hemorrhage with direct pressure

ADVANCED CARE GUIDELINES

d) Establish IV/IO access

e) If radial pulse is absent or systolic blood pressure is less than 90 mmHg, administer 20ml/kg, up to 250ml, NS or LR. Repeat as needed to until radial pulse returns or systolic blood pressure reaches 90 mmHg.

Hypovolemic *Internal* Bleeding

BASIC CARE GUIDELINES

a) Place patient in supine position

b) Consider use of PASG for lower extremity or pelvis fractures

c) Consider use of pelvic stabilizer for pelvis fractures

ADVANCED CARE GUIDELINES

d) Establish IV/IO access

e) If radial pulse is absent or systolic blood pressure is less than 90 mmHg, administer 20ml/kg, up to 250ml, NS or LR. Repeat as needed to until radial pulse returns or systolic blood pressure reaches 90 mmHg.

(SHOCK Continued)

Cardiogenic

BASIC CARE GUIDELINES

a) Place in position of comfort

b) If capability exists, obtain a 12-lead EKG and transmit it to the receiving facility and/or medical control for interpretation prior to patient's arrival

ADVANCED CARE GUIDELINES

c) Establish IV/IO access

d) Obtain 12-lead EKG

e) Administer dopamine IV or IO at 10-20/mcg/kg/min

Obstructive Shock: Tension Pneumothorax

BASIC CARE GUIDELINES

a) Place in a position of comfort

ADVANCED CARE GUIDELINES

b) Perform needle decompression

Obstructive Shock: Pericardial Tamponade

BASIC CARE GUIDELINES

a) Place in a position of comfort

ADVANCED CARE GUIDELINES

b) The goal should be to minimize scene time with time critical injuries, including establishing IV access en route.

c) Administer 20 ml/kg, up to 500ml, NS or LR. Repeat as needed to maintain a systolic pressure of 90 mmHg.

(SHOCK Continued)

Obstructive Shock: Pulmonary Embolus

BASIC CARE GUIDELINES

a) Place in a position of comfort

b) Avoid further heat loss

ADVANCED CARE GUIDELINES

c) Administer 20 ml/kg, up to 500ml, NS or LR. Repeat as needed to maintain a systolic pressure of 90 mmHg

d) If available, obtain 12-lead EKG

e) Evaluate the need for pain and nausea control

f) If patient is alert and oriented and expresses no allergy to aspirin, consider having patient chew nonenteric aspirin 160 – 325 mg

g) Consider administration of dopamine IV or IO at 10-20/mcg/kg/min if systolic blood pressure is less than 90 mmHg.

Distributive Shock: Neurogenic

BASIC CARE GUIDELINES

a) Place supine

b) Avoid further heat loss

(SHOCK Continued)

ADVANCED CARE GUIDELINES

a) Administer 20 ml/kg, up to 500ml, NS or LR. Repeat as needed to maintain a systolic pressure of 90 mmHg

c) Consider administering dopamine at 10-20 mcg/kg/min IV or IO

d) If symptomatic bradycardia is present and does not respond to the treatments above, consider:

- Administering atropine 0.5 mg every 5 minutes, up to 3 mg
  OR
- Transcutaneous pacing

Distributive Shock: Anaphylactic

BASIC CARE GUIDELINES

b) If the patient has a physician prescribed Auto-Inject Epinephrine assist with administering it for signs of anaphylaxis

ADVANCED CARE GUIDELINES

c) Administer epinephrine 1:1,000 concentration 0.01 mg/kg IM, up to a single dose of 0.5 mg. Maximum total dose 1 mg.

d) Administer diphenhydramine 25 – 50 mg IV/IM

e) Administer albuterol 2.5mg by nebulizer if respiratory distress

f) Evaluate need for early intubation if severe anaphylaxis

g) For cases of severe anaphylaxis consider administration of epinephrine 1:10,000 concentration 0.3 mg - 0.5 mg IV/IO slowly over 3-5 minutes.

(SHOCK Continued)

Distributive Shock: Septic

BASIC CARE GUIDELINES

a) Maintain oxygen saturation between 94% - 99%

b) Place patient in supine position

c) If temperature is over 102°F/38.9°C, cool patient (i.e. cool sponges)

ADVANCED CARE GUIDELINES

d) Administer 20 ml/kg, up to 500ml, NS or LR. Repeat as needed to maintain a systolic pressure of 90 mmHg

e) If temperature is over 102oF/38.9oC, cool patient

f) Consider administering dopamine at 10-20 mcg/kg/min IV or IO

g) Consider administering diphenhydramine 25 – 50 mg IV/IM

STROKE

Revised 2017

1. Follow initial patient care protocol
2. Refer to Appendix G

BASIC CARE GUIDELINES

a) Complete a validated stroke exam such as the MEND exam. Notify receiving facility as soon as possible if stroke is suspected
b) Check blood glucose, if available
c) Place patient in position of comfort, loosen tight clothing and provide reassurance.
d) If patient is complaining of shortness of breath, has signs of respiratory distress and pulse oximetry of less than 94% then titrate oxygen to maintain a saturation of 94-99%

ADVANCED CARE GUIDELINES

a) If blood sugar less than 60 mg/dL administer D50 12.5 - 25 gm IV

    - If no vascular access, administer glucagon 1 mg IM

b) Monitor patient's level of consciousness and blood pressure every five (5) minutes, and keep patient as calm as possible

TERMINATION OF RESUSCITATIVE EFFORTS

Revised 2018

Indications to consider termination of resuscitation:

1. Advanced level care (Paramedic level) has been instituted to include rhythm analysis and defibrillation if indicated, airway management, and medications given per protocol
2. No return of spontaneous circulation or respiration
3. Correctable causes or special resuscitation circumstances have been considered and addressed
4. Patient does not have profound hypothermia
5. Patient has no other signs of life (no response to pain, non-reactive pupils, no spontaneous movement)

Termination of resuscitation:

1. A valid DNR order, such as IPOST, is obtained by the EMS provider at any level

OR

2. Patient meets all criteria under 'indications' above and as applicable to scope of practice

    a. *On-line medical direction* is contacted (while advanced care continues) to discuss any further appropriate actions.

    b. Advanced care may be discontinued if *physician on-line medical direction* authorizes.

Other considerations:

1. Documentation must reflect that the decision to terminate resuscitation was determined by *physician on-line medical direction*.

2. An EMS/health care provider must attend the deceased until the appropriate authorities arrive.

3. All IVs, tubes, etc. should be left in place until the medical examiner authorizes removal.

4. Implement survivor support plans related to coroner notification, funeral home transfer, leaving the body at the scene, and death notification/grief counseling for survivors.

5. See Appendix J -EMS Provider Initiating Organ and Tissue Donation at the Scene of the Deceased.

TRAUMA

Revised 2016

1. Follow Initial Patient Protocol for all patients

2. Follow the Out-of-Hospital Trauma Triage Destination Decision Protocol for the identification of time-critical injuries, method of transport and destination decision for treatment of those injuries

3. The goal should be to minimize scene time with time critical injuries, including establishing IVs enroute.

Hemorrhage Control

BASIC CARE GUIDELINES

e) Control bleeding with direct pressure. Large gaping wounds may need application of a bulky sterile gauze dressing and direct pressure by hand

f) If direct pressure/pressure dressing is ineffective or impractical, apply a tourniquet to extremity

g) If bleeding site is not amenable to tourniquet placement (i.e. junctional injury), apply a topical hemostatic agent with direct pressure

ADVANCED CARE GUIDELINES

h) If radial pulse is absent or systolic blood pressure is less than 90 mmHg, administer 20ml/kg, up to 250ml, NS or LR. Repeat as needed to until radial pulse returns or systolic blood pressure reaches 90 mmHg.

Chest Trauma

BASIC CARE GUIDELINES

a) Seal open chest wounds immediately. Use occlusive dressing taped down. If the breathing becomes worse, loosen one side of the dressing to release pressure and then reseal

b) Impaled objects must be left in place and should be stabilized by building up around the object with multiple trauma dressings or other cushioning material

c) Take care that the penetrating object is not allowed to do further damage

(Trauma Continued)

ADVANCED CARE GUIDELINES

d) If concerned for symptomatic pneumothorax, perform needle decompression.

Abdominal Trauma

BASIC CARE GUIDELINES

a) Control external bleeding. Dress open wounds to prevent further contamination

b) Evisceration should be covered with a sterile saline soaked occlusive dressing

c) Impaled objects should be left in place, stabilized with bulky dressings for transport

Head, Neck, and Face Trauma

BASIC CARE GUIDELINES

a) Place the head in a neutral in-line position unless the patient complains of pain or the head does not easily move into this position

b) Closely monitor the airway. Provide suctioning of secretions or vomit as needed. Be prepared to log roll the patient if they vomit.

c) Impaled objects in the cheek may be removed if causing airway problems, or you are having trouble controlling bleeding.

d) Reassess vitals and Glasgow Coma Score (GCS) frequently

e) Consider eye shield for any significant eye trauma. If the globe is avulsed, do not put it back into socket; cover with moist saline dressing and then place cup over it.

ADVANCED CARE GUIDELINES

f) Consider intubation if GCS is less than 8 or airway cannot be maintained

g) If patient is intubated or has an airway such as Combitube, King or LMA, the PETCO2 levels should be continually monitored and maintained at 33 – 43 mmHg if available

(Trauma Continued)

Extremity Injuries

BASIC CARE GUIDELINES

a) Assess extent of injury including presence or absence of pulse

b) Establish and maintain manual stabilization of injured extremity by supporting above and below the injury

c) Remove or cut away clothing and jewelry

d) Cover open wounds with a sterile dressing

e) Do not intentionally replace any protruding bones

f) Apply cold pack to area of pain or swelling

g) If severe deformity of the distal extremity is cyanotic or lacks pulses, align with gentle traction before splinting, and transport immediately

Iowa EMS Treatment Protocols

Pediatric Treatment Protocols

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Initial Patient Care Protocol-Adult and Pediatrics **Revised 2018**

This protocols serves to reduce the need for extensive reiteration of basic assessment and other considerations in every protocol.

Assessment

1. Assess scene safety

    a. Evaluate for hazards to EMS personnel, patient, bystanders

    b. Determine number of patients

    c. Determine mechanism of injury

    d. Request additional resources if needed and weigh the benefits of waiting for additional resources against rapid transport to definitive care

    e. Consider declaration of mass casualty incident if needed

2. Use appropriate personal protective equipment (PPE)

3. Wear high-visibility, retro-reflective apparel when deemed appropriate (e.g. operations at night or in darkness, on or near roadways)

4. Consider cervical spine stabilization and/or spinal care if trauma

Primary Survey

1. **A**irway**, B**reathing, **C**irculation is cited below; (although there are specific circumstances where **C**irculation, **A**irway, **B**reathing may be indicated such as cardiac arrest or major arterial bleeding)

    a. Airway (assess for patency and open the airway as indicated)

        i. Patient is unable to maintain airway patency—open airway
            1. Head tilt chin lift
            2. Jaw thrust
            3. Suction
            4. Consider use of the appropriate airway management adjuncts and devices:
                - oral airway,
                - nasal airway,
                - blind insertion, or supraglottic airway device,
                - laryngeal mask airway,
                - endotracheal tube
            5. For patients with laryngectomies or tracheostomies, remove all objects or clothing that may obstruct the opening of these devices, maintain the flow of prescribed oxygen, and reposition the head and/or neck

b. Breathing

i. Evaluate rate, breath sounds, accessory muscle use, retractions, patient positioning
ii. Administer oxygen as appropriate with a target of achieving 94-98% saturation for most acutely ill patients
iii. Apnea (not breathing) – open airway-see #4 above

c. Circulation

i. Control any major external bleeding [see Extremity Trauma/External Hemorrhage Management guideline]
ii. Assess pulse
1. If none – go to Pediatric Cardiac Arrhythmia Protocol
2. Assess rate and quality of carotid and radial pulses
iii. Evaluate perfusion by assessing skin color and temperature
1. Evaluate capillary refill

d. Disability

i. Evaluate patient responsiveness: AVPU scale (Alert, Verbal, Pain, Unresponsive)
ii. Evaluate gross motor and sensory function in all extremities
iii. Check blood glucose in patients with altered mental status
iv. If acute stroke suspected – go to Stroke Protocol

e. Expose patient as appropriate to complaint

i. Be considerate of patient modesty
ii. Keep patient warm

Secondary Survey

1. The performance of the secondary survey should not delay transport in critical patients. Secondary surveys should be tailored to patient presentation and chief complaint. Secondary survey may not be completed if patient has critical primary survey problems

a. Head

i. Pupils
ii. Naso-oropharynx
iii. Skull and scalp

b. Neck

i. Jugular venous distension
ii. Tracheal position
iii. Spinal tenderness

c. Chest

i. Retractions
ii. Breath sounds
iii. Chest wall deformity

d. Abdomen/Back
    i. Flank/abdominal tenderness or bruising
    ii. Abdominal distension
e. Extremities
    i. Edema
    ii. Pulses
    iii. Deformity
e. Neurologic
    i. Mental status/orientation
    ii. Motor/sensory

2. Obtain Baseline Vital Signs (An initial full set of vital signs is required: pulse, blood pressure, respiratory rate, neurologic status assessment) (see chart below)

    a. Neurologic status assessment: establish a baseline and note any change in patient neurologic status
        i. Glasgow Coma Score (GCS) (see chart below) or
        ii. AVPU (**A**lert, **V**erbal, **P**ainful, **U**nresponsive)

    b. Patients with cardiac or respiratory complaints
        i. Pulse oximetry
        ii. 12-lead EKG should be obtained early in patients with cardiac or suspected cardiac complaints
        iii. Continuous cardiac monitoring, if available
        iv. Consider waveform capnography (essential for patients who require invasive airway management) or digital capnometry

    c. Patient with altered mental status
        i. Check blood glucose
        ii. Consider waveform capnography (essential for patients who require invasive airway management) or digital capnometry

    d. Stable patients should have at least two sets of pertinent vital signs. Ideally, one set should be taken shortly before arrival at receiving facility

    e. Critical patients should have pertinent vital signs frequently monitored

3. Obtain OPQRST history:

    a. **O**nset of symptoms
    b. **P**rovocation – location; any exacerbating or alleviating factors
    c. **Q**uality of pain
    d. **R**adiation of pain
    e. **S**everity of symptoms – pain scale
    f. **T**ime of onset and circumstances around onset

4. Obtain SAMPLE history:

    a. **S**ymptoms
    b. **A**llergies – medication, environmental, and foods
    c. **M**edications – prescription and over-the-counter; bring containers to ED if possible
    d. **P**ast medical history
        i. look for medical alert tags, portable medical records, advance directives
        ii. look for medical devices/implants (some common ones may be dialysis shunt, insulin pump, pacemaker, central venous access port, gastric tubes, urinary catheter)
    e. **L**ast oral intake
    f. **E**vents leading up to the 911 call
        In patients with syncope, seizure, altered mental status, or acute stroke, consider bringing the witness to the hospital or obtain their contact phone number to provide to ED care team

Treatment and Interventions

1. Administer oxygen as appropriate with a target of achieving 94-98% saturation

2. Tier with an appropriate service if advanced level of care or assistance is needed and can be accomplished in a timely manner

3. Place appropriate monitoring equipment as dictated by assessment and scope of practice – these may include:

    a. Continuous pulse oximetry
    b. Cardiac rhythm monitoring
    c. Waveform capnography or digital capnometry
    d. Carbon monoxide assessment

4. If within scope of practice establish vascular access if indicated or in patients who are at risk for clinical deterioration.

    a. If IO is to be used for a conscious patient, consider the use of 0.5 mg/kg of lidocaine 0.1mg/mL with slow push through IO needle to a maximum of 40 mg to mitigate pain from IO medication administration

5. Monitor pain scale if appropriate

6. Reassess patient

Patient Safety Considerations

1. Routine use of lights and sirens is not warranted

2. Even when lights and sirens are in use, always limit speeds to level that is safe for the emergency vehicle being driven and road conditions on which it is being operated

3. Be aware of legal issues and patient rights as they pertain to and impact patient care (e.g. patients with functional needs or children with special healthcare needs)

4. Be aware of potential need to adjust management based on patient age and comorbidities, including medication dosages

5. The maximum weight-based dose of medication administered to a pediatric patient should not exceed the maximum adult dose except where specifically stated in a patient care guideline

6. Direct medical control should be contacted when mandated or as needed

Key Considerations

Pediatrics: ALWAYS use a weight-based assessment tool (length-based tape or other system) to estimate patient weight and guide medication therapy and adjunct choices.

a. The pediatric population is generally defined by those patients who weigh up to 40 kg or up to 14-years of age, whichever comes first

b. Consider using the pediatric assessment triangle (appearance, work of breathing, circulation) when first approaching a child to help with assessment.

Geriatrics: The geriatric population is generally defined as those patients who are 65 years old or more.

a. In these patients, as well as all adult patients, reduced medication dosages may apply to patients with renal disease (i.e. on dialysis or a diagnosis of chronic renal insufficiency) or hepatic disease (i.e. severe cirrhosis or end-stage liver disease)

Co-morbidities: reduced medication dosages may apply to patients with renal disease (i.e. on dialysis or a diagnosis of chronic renal insufficiency) or hepatic disease (i.e. severe cirrhosis or end-stage liver disease).

Normal Vital Signs

Age	Pulse	Respiratory Rate	Systolic BP
Preterm less than 1 kg	120-160	30-60	36-58
Preterm 1 kg	120-160	30-60	42-66
Preterm 2 kg	120-160	30-60	50-72
Newborn	120-160	30-60	60-70
Up to 1 year	100-140	30-60	70-80
1-3 years	100-140	20-40	76-90
4-6 years	80-120	20-30	80-100
7-9 years	80-120	16-24	84-110
10-12 years	60-100	16-20	90-120
13-14 years	60-90	16-20	90-120
15 years or older	60-90	14-20	90-130

Glasgow Coma Scale

ADULT GLASGOW COMA SCALE		PEDIATRIC GLASGOW COMA SCALE	
Eye Opening (4)		**Eye Opening (4)**	
Spontaneous	4	Spontaneous	4
To Speech	3	To Speech	3
To Pain	2	To Pain	2
None	1	None	1
Best Motor Response (6)		**Best Motor Response (6)**	
Obeys Commands	6	Spontaneous Movement	6
Localizes Pain	5	Withdraws to Touch	5
Withdraws from Pain	4	Withdraws from Pain	4
Abnormal Flexion	3	Abnormal Flexion	3
Abnormal Extension	2	Abnormal Extension	2
None	1	None	1
Verbal Response (5)		**Verbal Response (5)**	
Oriented	5	Coos, Babbles	5
Confused	4	Irritable Cry	4
Inappropriate	3	Cries to Pain	3
Incomprehensible	2	Moans to Pain	2
None	1	None	1
Total		**Total**	

PEDIATRIC ALLERGIC REACTION

Reviewed 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Assess airway

b) If the patient has a physician prescribed auto-injectable epinephrine assist with administration and monitor for signs of anaphylaxis

ADVANCED CARE GUIDELINES

c) Consider epinephrine 1:1,000 concentration IM per pediatric dosing guideline up to a maximum dose of 0.5 mg

d) Consider one repeat dose of epinephrine 1:1,000 concentration IM per pediatric dosing guideline up to a maximum dose of 0.5 mg

e) Consider diphenhydramine IV or IM per pediatric dosing guideline, up to a maximum dose of 50 mg

f) If after two doses of IM epinephrine with persistent signs and symptoms, administer intravenous epinephrine infusion per pediatric dosing guideline.

g) Consider albuterol 2.5 mg by nebulizer

PEDIATRIC ALTERED MENTAL STATUS

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Obtain blood glucose

b) If conscious & able to swallow, administer glucose 15 gm by mouth for children over 2 years of age.

ADVANCED CARE GUIDELINES

c) If blood sugar less than 60 mg/dL administer Dextrose based on Pediatric Dosing Reference

d) If patient unconscious and no IV access; administer Glucagon 0.025 mg/kg IM up to 1 mg maximum

e) If no improvement in level of consciousness after glucose administration give naloxone 0.1 mg/kg IV up to maximum dose of 2.0 mg per dose

PEDIATRIC ASTHMA

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Use Airway Protocol to evaluate the airway and adequacy of ventilation

b) If patient has a physician prescribed, hand-held metered dose inhaler, assist with administration

c) Reassess patient and repeat second dose if necessary per medical direction

ADVANCED CARE GUIDELINES

d) Administer bronchodilator via Nebulizer

e) Evaluate the need for IM epinephrine 1:1,000 concentration according to length/weight based device. Dosage may be repeated once after 5 minutes.

f) Evaluate the need for airway management.

PEDIATRIC BEHAVIORAL EMERGENCIES

New 2017

1. Follow initial patient care protocol

2. If there is evidence of immediate danger, protect yourself and others by summoning law enforcement to help ensure safety

BASIC CARE GUIDELINES

a) Consider medical or traumatic causes of behavior problems

b) Keep environment calm

ADVANCED CARE GUIDELINES

c) For severe anxiety, consider a benzodiazepine such as Diazepam, with dosages based on Pediatric Dosing Reference

PEDIATRIC BURNS

Revised 2016

1. Follow initial patient care protocol

2. Continually monitor the airway for evidence of obstruction

3. Do not use any type of ointment, lotion, or antiseptic

4. Maintain normal patient temperature

5. Transport according to the Out-of-Hospital Trauma Destination Decision Protocol (Appendix B)

Thermal Burns

BASIC CARE GUIDELINES

a) Stop the burning process

b) Remove smoldering clothing and jewelry

c) Prevent further contamination of wounds

d) Cover the burned area with a clean, dry dressing or plastic wrap

e) Estimate percent of body surface area injured and estimate the depth of burn as superficial, partial thickness or full thickness

ADVANCED CARE GUIDELINES

f) Establish an IV of LR or NS. For severe burns, consider administration of 20 ml/kg, not to exceed 500 ml.

g) Contact medical control for further fluid administration

h) Treat pain per pain control protocol

(Pediatric Burns Continued)

Chemical Burns

BASIC CARE GUIDELINES

a) Brush off powders prior to flushing. Lint roller may also be used to remove powders prior to flushing

b) Immediately begin to flush with large amounts of water. Continue flushing the contaminated area when en route to the receiving facility

c) Do not contaminate uninjured areas while flushing

d) Attempt to identify contaminant

e) Transport according to the Out-of-Hospital Destination Decision Protocol (Appendix B)

ADVANCED CARE GUIDELINES

f) Treat pain per pain control protocol

Toxin in Eye

BASIC CARE GUIDELINES

a) Flood eye(s) with lukewarm water and have patient blink frequently during irrigation. Use caution to not contaminate other body areas

b) Continue irrigation until advanced personnel take over

c) Attempt to identify contaminant

d) Transport to the most appropriate medical facility

ADVANCED CARE GUIDELINES

e) Treat pain per pain control protocol

(Pediatric Burns Continued)

Electrical Burns

BASIC CARE GUIDELINES

a) Treat soft tissue injuries associated with the burn with dry dressing

b) Treat for shock if indicated

c) Transport according to the Out-of-Hospital Destination Decision Protocol (Appendix B)

d) Estimate percent of body surface area injured and estimate the depth of burn as superficial, partial thickness or full thickness

ADVANCED CARE GUIDELINES

f) Treat pain per pain control protocol

PEDIATRIC CARDIAC ARRHYTHMIA

Updated 2017

1. Follow initial patient care protocol

If no pulse

BASIC CARE GUIDELINES

a) Perform high quality CPR immediately, apply AED and follow device prompts

ADVANCED CARE GUIDELINES

b) Perform high quality CPR immediately, apply monitor and check rhythm as soon as possible

Ventricular fibrillation or ventricular tachycardia

a) Defibrillate at 2J/kg, immediately resume CPR for two minutes

b) Second defibrillation at 4 J/kg

c) Subsequent defibrillations increasing by 2 J/kg, to a maximum of 10 J/kg, not to exceed maximum adult dose

d) Evaluate and treat for underlying causes

e) Administer epinephrine 1:10,000 according to Pediatric Dosing Reference every 3-5 minutes

f) Administer anti-arrhythmic

- Administer amiodarone according to Pediatric Dosing Reference, may repeat twice

OR

- Administer lidocaine according to Pediatric Dosing Reference

PEDIATRIC CARDIAC ARRHYTHMIA CONTINUED

ASYSTOLE/PEA

a) Evaluate and treat for underlying causes

b) Administer epinephrine 1:10,000 according to Pediatric Dosing Reference every 3-5 minutes as needed

Cardiac arrhythmias if pulse

BASIC CARE GUIDELINES

a) If patient is complaining of shortness of breath, has signs of respiratory distress, or pulse oximetry of less than 94% then titrate oxygen to symptom improvement or to maintain a saturation of 94-99%

b) Evaluate and treat for underlying causes

BRADYCARDIA WITH SIGNS OF POOR PERFUSION

BASIC CARE GUIDELINES

a) Start CPR if pulse is less than 60 and altered mental status

ADVANCED CARE GUIDELINES

b) Administer epinephrine 1:10,000 according to Pediatric Dosing Reference every 3-5 minutes

c) Consider administration of atropine according to Pediatric Dosing Reference

TACHYCARDIA (RATES GREATER THAN 180 IN CHILDREN OR 210 IN INFANTS)

ADVANCED CARE GUIDELINES

a) If patient unstable:
b) Perform synchronized cardioversion according to Pediatric Dosing Reference
c) Consider sedation according to Pediatric Dosing Reference
   If patient stable:
   - With wide QRS
     - If regular and monomorphic, consider administration of adenosine according to Pediatric Dosing Reference
   - With narrow QRS
     - Perform vagal maneuvers
     - Consider administration of adenosine according to Pediatric Dosing Reference

PEDIATRIC DETERMINATION OF DEATH/WITHHOLDING RESUSCITATIVE EFFORTS

Updated 2018

Follow initial patient care protocol

Resuscitation should be started on all patients who are found apneic and pulseless unless the following medical cause, traumatic injury or body condition clearly indicating biological death (irreversible brain death) such as:

- Signs of trauma are conclusively incompatible with life
    - Decapitation
    - Transection of the torso
    - 90% of the body surface area with full thickness burns
    - Massive crush injury
    - Apneic, pulseless and without other signs of life (movement, EKG activity, pupillary response)
- Cardiac and respiratory arrest with obvious signs of death including
    - Rigor mortis
    - Dependent lividity
- Physical decomposition of the body

OR

A valid DNR order (form, card, bracelet) or other actionable medical order (e.g. I-POLST form) that:

- Conforms to the state specifications

If apparent death is confirmed, continue as follows:

a) The county Medical Examiner and law enforcement shall be contacted
b) When possible, contact Iowa Donor Network at 1-800-831-4131.
See Protocol Appendix
c) At least one EMS provider should remain at the scene until the appropriate authority is present
d) Provide psychological support for grieving survivors
e) Document the reason(s) no resuscitation was initiated
f) Preserve the crime scene if applicable

PEDIATRIC DROWNING

Revised 2018

Follow initial patient care protocol

BASIC CARE GUIDELINES

a) If cervical spine trauma is suspected-follow Spinal Care Protocol
b) Treat for hypothermia if necessary

ADVANCED CARE GUIDELINES

c) Consider placing a gastric tube to decompress the stomach if available

PEDIATRIC NAUSEA & VOMITING

Revised 2018

1. Follow Initial Patient Care Protocol

BASIC CARE GUIDELINES

2. Limit oral intake to sips

ADVANCED CARE GUIDELINES

a) Consider fluid bolus if evidence of hypovolemia

b) If patient nauseated or is vomiting, consider anti-emetic medication such as ondansetron (Zofran) per pediatric dosing guideline. Consider a repeat dose after 5 minutes if necessary.

NEWBORN RESUSCITATION AND CARE

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Suction the airway using a bulb syringe as soon as the head is delivered and before delivery of the body. Suction the mouth first, then the nose

b) Once the body is fully delivered, dry the baby, replace wet towels with dry ones, and wrap the baby in a thermal blanket or dry towel. Cover the scalp to preserve warmth

c) Open and position the airway. Suction the airway again using a bulb syringe. Suction the mouth first, then the nose

d) Assess breathing and adequacy of ventilation

e) If ventilation is inadequate, stimulate by gently rubbing the back and flicking the soles of the feet

f) If ventilation is still inadequate after brief stimulation, begin assisted ventilation at 40 to 60 breaths per minute using a bag-valve-mask device with room air. If no improvement after 30-60 seconds, apply 100% oxygen

g) If ventilation is adequate and the infant displays central cyanosis, administer oxygen at 5 L via blow-by. Hold the tubing 1/2 to 1 inches from the nose

h) If the heart rate is slower than 60 beats per minute after 30 seconds of assisted ventilation with high-flow, oxygen

i) Begin chest compressions at a combined rate of 120/minute (three compressions to each ventilation)

(Newborn Resuscitation and Care Continued)

ADVANCED CARE GUIDELINES

j) If there is no improvement in heart rate after 30 seconds. Perform endotracheal intubation

k) If there is no improvement in heart rate after intubation and ventilation, administer
   - epinephrine 1:1000 concentration at 0.1 mg/kg (maximum individual dose 10.0 mg) via endotracheal tube,
   - or epinephrine 1:10,000 concentration at 0.01 mg/kg (maximum individual dose 1.0 mg) IV/IO
   - Repeat epinephrine at the same dose every 3 to 5 minutes as needed

l) Initiate transport. Reassess heart rate and respirations enroute

If the heart rate is between 60 & 80 beats per minute, initiate the following actions:

m) Continue assisted ventilation with high-flow, 100% concentration oxygen. If there is no improvement in heart rate after 30 seconds, initiate management sequence described in step H above, beginning with chest compressions

n) Initiate transport. Reassess heart rate and respirations enroute

If the heart rate is between 80 & 100 beats per minute, initiate the following actions:

o) Continue assisted ventilation with high-flow, 100% concentration oxygen. Stimulate as previously described

p) Initiate transport. Reassess heart rate after 15 to 30 seconds

If the heart rate is faster than 100 beats per minute, initiate the following actions:

q) Assess skin color. If central cyanosis is still present, continue blow by oxygen. Initiate transport. Reassess heart rate and respirations enroute

If thick meconium is present:

r) Initiate endotracheal intubation before the infant takes a first breath. Suction the airway using an appropriate suction adapter while withdrawing the endotracheal tube. Repeat this procedure until the endotracheal tube is clear of meconium. If the infant's heart rate slows, discontinue suctioning immediately and provide ventilation until the infant recovers

Note: If the infant is already breathing or crying, this step may be omitted

PEDIATRIC PAIN CONTROL

Revised 2018

1. Follow initial patient care protocol

2. First attempt to manage all painful conditions with basic care

BASIC CARE GUIDELINES

a) Place the patient in a position of comfort

ADVANCED CARE GUIDELINES

b) Consider administration of pain medications for patients that have significant pain, do not have a decreased level of consciousness, are hemodynamically stable, and have oxygen saturations above 94%

Consider:

- Morphine per pediatric dosing guideline

or

- Fentanyl per pediatric dosing guideline for IV or Intranasal

or

- Ketamine 0.1 mg/kg-0.3 mg/kg IV or 0.5 mg/kg IM or IN

or

- Nitrous Oxide per self-administration observe for altered mentation before secondary doses and continued ability to self-administer.

c) The patient must have vital signs taken prior to each dose, after each dose, and be monitored closely.

d) After drug administration, reassess the patient using the appropriate pain scale

PEDIATRIC POISONING

Reviewed 2018

1. Follow initial patient care protocol

2. Identify contaminate and call Poison Control and follow directions given to provide care: 1-800-222-1222

3. Contact Medical Direction as soon as possible with information given by Poison Control and care given

BASIC CARE GUIDELINES

1. Attempt to identify substances ingested or exposed by interviewing witnesses. Try to establish the exact time of ingestion, as well as the amount and type of ingestion. Medication containers or chemical labels should be taken with you.

ADVANCED CARE GUIDELINES

Bradycardia with Unknown Overdose:

a. Consider Atropine per pediatric dosing guideline every 5 minutes as needed up to total dose of 3 mg.
b. Consider dopamine (Intropin) per pediatric dosing guideline
c. Consider transcutaneous pacemaker

Tachycardia with Unknown Overdose:

d. Consider benzodiazepine such as
    i. Midazolam per pediatric dosing guideline IV / IM repeated every 5 minutes as needed to a maximum of 5 mg
    OR
    ii. Diazepam per pediatric dosing guideline IV / IM repeated every 5 minutes as needed to a maximum of 10 mg
    OR
    iii. Lorazepam per pediatric dosing guideline, repeated every 30 minutes as needed to a maximum of 4 mg. Use for long transports
e. AVOID lidocaine and beta-blockers, particularly Labetalol.
f. Consider Sodium Bicarbonate per pediatric dosing guideline IV for dysrhythmias refractory to benzodiazepines (especially those with a wide QRS complex or prolonged QT).
g. Cool patients presenting with agitation, delirium, seizure and elevated body temperature.

Suspected Opioid Overdose:

h. Support ventilations via bag-valve-mask and oxygen while preparations are made for Naloxone (Narcan) administration.
i. Consider Naloxone (Narcan) per pediatric dosing guideline

Calcium Channel Blocker (Norvasc, Cardizem) or Beta Blocker (Atenolol, Lopressor, Inderal) Overdose :

j. Consider Calcium gluconate 10% per pediatric dosing guideline IV over 5 minutes
    i. May repeat x 1 in 5 minutes if persistent EKG changes
    ii. Calcium therapy is contraindicated for patients taking digitalis
k. Consider Glucagon per pediatric dosing guideline slow IV push over 1-2 minutes, may repeat in 10-15 minutes if no response is seen.
l. Consider Sodium bicarbonate per pediatric dosing guideline IV for wide complex QRS.
m. Consider transcutaneous pacemaker

Digitalis Overdose:

n. Consider Atropine per pediatric dosing guideline every 5 minutes as needed up to total dose of 0.04 mg/kg or 3 mg.
o. Consider transcutaneous pacemaker

TCA (Elavil, Tofranil) Overdose:

p. Consider Sodium bicarbonate per pediatric dosing guideline IV for wide complex QRS.
q. Be cautious for seizures.

PEDIATRIC SEIZURE

Revised 2017

1. Follow initial patient care protocol

Active Seizure

BASIC CARE GUIDELINES

a) Protect airway

ADVANCED CARE GUIDELINES

b) Administer Benzodiazepine, dosage according to Pediatric Dosing Reference to stop seizure. May repeat dose in 5 minutes if still seizing

c) Check blood glucose level, if available, and treat hypoglycemia if present

Post Seizure

BASIC CARE GUIDELINES

a) Protect airway

PEDIATRIC SELECTIVE SPINAL CARE

1. Follow Initial Patient Care Protocol

BASIC CARE GUIDELINES

1) Patient Presentation:

a) This protocol is intended for patients who present with a traumatic mechanism of injury.
b) Immobilization is contraindicated for patients who have penetrating trauma who do not have a neurological deficit.

2) Patient Management:

a) Assessment while maintaining spinal alignment:
   - mental status,
   - neurological deficits,
   - spinal pain or tenderness, while maintaining spinal alignment, examine the spine for tenderness on palpation or deformities.
   - any evidence of intoxication,
   - or other severe injuries.

b) Treatment and Interventions:

Apply cervical restriction if there is any of the following:

- Patient complains of neck pain.
- Any neck tenderness on palpation.
- Any abnormal mental status, including extreme agitation, or neurological deficit.
- Any evidence of alcohol or drug intoxication
- There are other severe or painful injuries present.
- Any communication barrier that prevents accurate assessment.

(Pediatric Selective Spinal Immobilization continued)

c) Spinal and cervical restriction and long spine board, full body vacuum splint, scoop stretcher, or similar device if:
    - Patient complains of midline back pain
    - Any midline back tenderness

Note 1: Distracting injuries or altered mental status does not necessitate long spine board use.

Note 2: Patients should not routinely be transported on long boards, unless the clinical situation warrants long board use. An example of this may be facilitation of multiple extremity injuries or an unstable patient where removal of a board will delay transport and/or other treatment priorities. In these rare situation, long boards should be padded or have a vacuum mattress applied to minimize secondary injury to the patient.

PEDIATRIC SHOCK

Revised 2012

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Assess airway via Airway Protocol

b) Assess circulation and perfusion

c) Control external bleeding

d) Assess mental status

e) Expose the child only as necessary to perform further assessments. Maintain the child's body temperature throughout the examination

f) Initiate transport. Perform focused history and detailed physical examination en route to the hospital if patient status and management of resources permit

ADVANCED CARE GUIDELINES

g) Initiate cardiac monitoring

h) Establish IV access using an age-appropriate large-bore catheter with large-caliber tubing. If intravenous access cannot be obtained in a child younger than six years, proceed with intraosseous access. Do not delay transport to obtain vascular access

i) Administer a fluid bolus of normal saline at 20 ml/kg over 10 to 15 minutes. Reassess patient after bolus. If signs of shock persist, bolus may be repeated at the same dose up to two additional times for a maximum total of 60 ml/kg

PEDIATRIC TRAUMA

Revised 2016

1. Follow initial patient care protocol

2. Follow the Out-of-Hospital Trauma Triage Destination Decision Protocol for the identification of time critical injuries, method of transport and trauma facility resources necessary for treatment of those injuries

3. The goal should be to minimize scene time with time critical injuries, including establishing IVs en route.

BASIC CARE GUIDELINES

a) Follow Shock Protocol if shock is present

Hemorrhage Control

BASIC CARE GUIDELINES

a) Control bleeding with direct pressure. Large gaping wounds may need application of a bulky sterile gauze dressing and direct pressure by hand

b) If direct pressure/pressure dressing is ineffective or impractical, apply a tourniquet to extremity

c) If bleeding site is not amenable to tourniquet placement (i.e. junctional injury), apply a topical hemostatic agent with direct pressure

ADVANCED CARE GUIDELINES

d) Establish large bore IV

e) Cardiac monitor

(Pediatric Trauma continued)

Chest Trauma

BASIC CARE GUIDELINES

a) Seal open chest wounds immediately. Use occlusive dressing taped down. If the breathing becomes worse, loosen one side of the dressing to release pressure and then reseal

b) Impaled objects must be left in place and should be stabilized by building up around the object with multiple trauma dressings or other cushioning material

c) Take care that the penetrating object is not allowed to do further damage

Abdominal Trauma

BASIC CARE GUIDELINES

a) Control external bleeding. Dress open wounds to prevent further contamination

b) Evisceration should be covered with a sterile saline soaked occlusive dressing

c) Impaled objects should be stabilized with bulky dressings for transport

Head, Neck, and Face Trauma

BASIC CARE GUIDELINES

a) Place the head in a neutral in-line position unless the patient complains of pain or the head does not easily move into this position

b) Closely monitor the airway. Provide suctioning of secretions or vomit as needed. Be prepared to log roll the patient if they vomit. Maintain manual spinal stabilization if patient is log rolled

c) Reassess vitals, GCS and pupillary response frequently

d) Consider eye shield for any significant eye trauma. If the globe is avulsed, do not put it back into socket; cover with moist saline dressing and then place cup over it

Iowa EMS Treatment Appendices

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Appendix A - EMS Out-of-Hospital Do-Not-Resuscitate Protocol

Purpose: This protocol is intended to avoid unwarranted resuscitation by emergency care providers in the out-of-hospital setting for a qualified patient. There must be a valid Out-Of-Hospital Do-Not-Resuscitate (OOH DNR) order signed by the qualified patient's attending physician or the presence of the OOH DNR identifier indicating the existence of a valid OOH DNR order.

No resuscitation: Means withholding any medical intervention that utilizes mechanical or artificial means to sustain, restore, or supplant a spontaneous vital function, including but not limited to:

1. Chest compressions
2. Defibrillation,
3. Esophageal/tracheal/double-lumen airway; endotracheal intubation, or
4. Emergency drugs to alter cardiac or respiratory function or otherwise sustain life.

Patient criteria: The following patients are recognized as qualified patients to receive no resuscitation:

1. The presence of the uniform OOH DNR order or uniform OOH DNR identifier, or
2. The presence of the attending physician to provide direct verbal orders for care of the patient.

The presence of a signed physician order on a form other than the uniform OOH DNR order form approved by the department may be honored if approved by the service program EMS medical director. However, the immunities provided by law apply only in the presence of the uniform OOH DNR order or uniform OOH DNR identifier. When the uniform OOH DNR order or uniform OOH DNR identifier is not present contact must be made with on-line medical control and on-line medical control must concur that no resuscitation is appropriate.

Revocation: An OOH DNR order is deemed revoked at any time that a patient, or an individual authorized to act on the patient's behalf as listed on the OOH DNR order, is able to communicate in any manner the intent that the order be revoked. The personal wishes of family members or other individuals who are not authorized in the order to act on the patient's behalf shall not supersede a valid OOH DNR order.

Comfort Care (♥): When a patient has met the criteria for no resuscitation under the foregoing information, the emergency care provider should continue to provide that care which is intended to make the patient comfortable (a.k.a. ♥ **Comfort Care**). Whether other types of care are indicated will depend upon individual circumstances for which medical control may be contacted by or through the responding ambulance service personnel.

♥ Comfort Care may include, but is not limited to:

1. Pain medication.
2. Fluid therapy.
3. Respiratory assistance (oxygen and suctioning).

Qualified Patient means an adult patient determined by an attending physician to be in a terminal condition for which the attending physician has issued an Out of Hospital DNR order in accordance with the law. Iowa Administrative Code 641-142.1 (144A) Definitions.

Appendix B: Adult Out-Of-Hospital Trauma Triage Destination Decision Protocol

The following criteria shall be utilized to assist the EMS provider in the identification of time critical injuries, method of transport and trauma care facility resources necessary for treatment of those injuries

Step 1 - Assess for Time Critical Injuries: Level of Consciousness & Vital Signs

- Glasgow Coma Score ≤13
- Respiratory rate <10 or >29 breaths per minute, or need for ventilatory support.
- Systolic B/P (mmHg) less than <90 mmHg

If ground transport time to a Resource (Level I) or Regional (Level II) Trauma Care Facility is less than 30 minutes, transport to the nearest Resource (Level I) or Regional (Level II) Trauma Care Facility. If greater than 30 minutes, ground transport time to Resource (Level I) or Regional (Level II) Trauma Care Facility, transport to the nearest appropriate Trauma Care Facility. If time can be saved or level of care needs exist, tier with ground or air ALS service program

If step 1 does not apply, move on to step 2

Step 2 - Assess for Anatomy of an Injury

- All penetrating injuries to head, neck, torso and extremities proximal to elbow or knee
- Chest wall instability or deformity (e.g., flail chest)
- Suspected two or more proximal long-bone fractures
- Suspected pelvic fractures
- Crushed, degloved, mangled, or pulseless extremity
- Open or depressed skull fracture
- Amputation proximal to wrist or ankle
- Paralysis or Paresthesia
- Partial or full thickness burns > 10% TBSA or involving face/airway

If ground transport time to a Resource (Level I) or Regional (Level II) Trauma Care Facility is less than 30 minutes, transport to the nearest Resource (Level I) or Regional (Level II) Trauma Care Facility. If greater than 30 minutes ground transport time to Resource (Level I) or Regional (Level II) Trauma Care Facility, transport to the nearest appropriate Trauma Care Facility. If time can be saved or level of care needs exist, tier with ground or air ALS service program

If step 2 does not apply, move on to step 3

Step 3 - Consider Mechanism of Injury & High Energy Transfer

- Falls
  - Adult: > 20 ft. (one story is equal to 10 feet)
- High-risk auto crash:
  - Interior compartment intrusion, including roof: >12 inches' occupant site; >18 inches any site
  - Ejection (partial or complete) from automobile
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with high risk of injury
- Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
- Motorcycle crash >20 mph

Transport to the nearest appropriate Trauma Care Facility, need not be the highest level trauma care facility.

If step 3 does not apply, move on to step 4

Step 4 - Consider risk factors:

- Older adults
  - Risk of injury/death increases after age 55 years
  - SBP<110 might represent shock after age 65 years
- EMS provider judgment
- Low impact mechanisms (e.g. ground level falls) might result in severe injury
- ETOH/Drug use
- Pregnancy > 20 weeks
- Anticoagulants and bleeding disorders
- Patients with head injury are at high risk for rapid deterioration

Transport to the nearest appropriate Trauma Care Facility, need not be the highest level trauma care facility.

If none of the criteria in the above 4 steps are met, follow local protocol for patient disposition. When in doubt, transport to nearest trauma care facility for evaluation.

For all Transported Trauma Patients:

1. Patient report to include: MOI, Injuries, Vital Signs & GCS, Treatment, Age, Gender and ETA
2. Obtain further orders from medical control as needed.

Pediatric Out-Of-Hospital Trauma Triage Destination Decision Protocol

The following criteria shall be utilized to assist the EMS provider in the identification of time critical injuries, method of transport and trauma care facility resources necessary for treatment of those injuries

Step 1 - Assess for Time Critical Injuries: Level of Consciousness & Vital Signs

- ***Abnormal Responsiveness:*** abnormal or absent cry or speech. Decreased response to parents or environmental stimuli. Floppy or rigid muscle tone or not moving. **V**erbal, **P**ain, or **U**nresponsive on AVPU scale.

OR

- **Airway/Breathing Compromise:** obstruction to airflow, gurgling, stridor or noisy breathing. Increased/excessive retractions or abdominal muscle use, nasal flaring, stridor, wheezes, grunting, gasping, or gurgling. Decreased/absent respiratory effort or noisy breathing. Respiratory rate outside normal range.

OR

- **Circulatory Compromise:** cyanosis, mottling, paleness/pallor or obvious significant bleeding. Absent or weak peripheral or central pulses; pulse or systolic BP outside normal range. Capillary refill > 2 seconds with other abnormal findings.
- Glasgow Coma Score ≤13

If ground transport time to a Resource (Level I) or Regional (Level II) Trauma Care Facility is less than 30 minutes, transport to the nearest Resource (Level I) or Regional (Level II) Trauma Care Facility. If greater than 30 minutes, ground transport time to Resource (Level I) or Regional (Level II) Trauma Care Facility, transport to the nearest appropriate Trauma Care Facility. If time can be saved or level of care needs exist, tier with ground or air ALS service program

If step 1 does not apply, move on to step 2

Step 2 - Assess for Anatomy of an Injury

- All penetrating injuries to head, neck, torso and extremities proximal to elbow or knee
- Chest wall instability or deformity (e.g., flail chest)
- Suspected two or more proximal long-bone fractures
- Suspected pelvic fractures
- Crushed, degloved, mangled, or pulseless extremity
- Open or depressed skull fracture
- Amputation proximal to wrist or ankle
- Paralysis or Paresthesia
- Partial or full thickness burns > 10% TBSA or involving face/airway

If ground transport time to a Resource (Level I) or Regional (Level II) Trauma Care Facility is less than 30 minutes, transport to the nearest Resource (Level I) or Regional (Level II) Trauma Care Facility. If greater than 30 minutes ground transport time to Resource (Level I) or Regional (Level II) Trauma Care Facility, transport to the nearest appropriate Trauma Care Facility. If time can be saved or level of care needs exist, tier with ground or air ALS service program

If step 2 does not apply, move on to step 3

Step 3 - Consider Mechanism of Injury & High Energy Transfer

- Falls
- >10 feet or two times the height of the child
- High-risk auto crash:
  - Interior compartment intrusion, including roof: >12 inches occupant site; >18 inches any site
  - Ejection (partial or complete) from automobile
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with high risk of injury
- Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
- Motorcycle crash >20 mph

Transport to the nearest appropriate Trauma Care Facility, need not be the highest level trauma care facility.

If step 3 does not apply, move on to step 4

Step 4 - Consider risk factors:

- Pregnancy > 20 weeks
- Anticoagulants and bleeding disorders
- Patients with head injury are at high risk for rapid deterioration
- EMS provider Judgment
- ETOH/Drug use

Transport to the nearest **(Any Level)** Trauma Care Facility.

If none of the criteria in the above 4 steps are met, follow local protocol for patient disposition. When in doubt, transport to nearest trauma care facility for evaluation.

For all Transported Trauma Patients:

1. Patient report to include: MOI, Injuries, Vital Signs & GCS, Treatment, Age, Gender and ETA
2. Obtain further orders from medical control as needed

Appendix C: Physician on Scene

Your offer of assistance is appreciated. However, this EMS service, under law and in accordance with nationally recognized standards of care in Emergency Medicine, operates under the direct authority of a Physician Medical Director. Our Medical Director and physician designees have already established a physician-patient relationship with this patient. To ensure the best possible patient care, and to prevent inadvertent patient abandonment or interference with an established physician-patient relationship, please comply with our established protocols.

Please review the following if you wish to assume responsibility for this patient:

1. You must be recognized or identify yourself as a qualified physician.
2. You must be able to provide proof of licensure and identify your specialty.
3. If requested, you must speak directly with the on-line medical control physician to verify transfer of responsibility for the patient from that physician to you.
4. EMS personnel, in accordance with state law, can only follow orders that are consistent with the approved protocols.
5. You must accompany this patient to the hospital, unless the on-line medical control physician agrees to re-assume responsibility for this patient prior to transport.

Appendix D: Air Medical Transport - Utilization Guidelines for Scene Response

These guidelines have been developed to assist with the decision making for use of air medical transport by the emergency medical services community. The goal is to match the patient's needs to the timely availability of resources in order to improve the care and outcome of the patient from injury or illness.

Clinical indicators:

1. Advanced level of care need (skills or medications) exists that could be made available more promptly with an air medical tier versus tiering with ground ALS service, and further delay would likely jeopardize the outcome of the patient

2. Transport time to definitive care hospital can be significantly reduced for a critically ill or injured patient where saving time is in the best interest of the patient

3. Multiple critically ill or injured patients at the scene where the needs exceed the means available

4. EMS Provider 'index of suspicion' based upon mechanism of injury and patient assessment

Difficult access situations:

1. Wilderness or water rescue assistance needed

2. Road conditions impaired due to weather, traffic, or road construction / repair

3. Other locations difficult to access

The local EMS provider must have a good understanding of regional EMS resources and strive to integrate resources to assure that ground and air services cooperate as efficiently and effectively as possible in the best interest of the patient.

Medical directors for ambulance services should assure that EMS providers are aware of their own service's abilities and limitations given the level of care and geographic response area being served. Audits should be conducted on an ongoing basis to assure that utilization of regional resources (ground and air) is appropriate in order to provide the level of care needed on a timely basis.

Appendix E: Intentionally Blank

Appendix F: Fibrinolytic Checklist

This checklist should be completed for patients suffering from Acute Coronary Syndromes and/or-STEMI. This tool will be used to triage patients to the appropriate receiving facility, and provide a template for passing information on to the receiving facility. Fibrinolytic screening may be done at the EMT level; however, the decision to bypass a local hospital to transport to a Percutaneous Coronary Intervention (PCI) capable facility is reserved for the Paramedic level.

Any **YES** findings will be relayed to medical control. **Absolute Contraindications** preclude the use of fibrinolytics. **Relative Contraindications** require consultation with medical control.

DATE: PATIENT AGE: MALE FEMALE INCIDENT/RECORD #:	**YES**	**NO**
ABSOLUTE CONTRAINDICATIONS		
Any known intracranial hemorrhage?		
Known structural cerebral vascular lesion?		
Ischemic stroke within 3 months EXCEPT acute ischemic stroke within 3 hours?		
Suspected aortic dissection?		
Active bleeding or bleeding diathesis (excluding menses)?		
Significant closed head trauma or facial trauma within 3 months?		
RELATIVE CONTRAINDICATIONS		
History of chronic, severe, poorly controlled hypertension?		
Severe, uncontrolled hypertension on presentation (S >180mmHg or D>110mmHg)		
History of prior ischemic stroke >3 months, dementia, or known intracranial pathology?		
Traumatic or prolonged (>10 min) CPR or major surgery (<3 weeks)		
Non-compressible vascular punctures?		
Pregnancy?		
Active peptic ulcer?		
Current use of anticoagulants?		
EMS Provider Print Name: Signature:		

Appendix G: Strategies for Reperfusion Therapy: Acute Stroke

Revised 2017

Reperfusion Therapy Screening Not Limited to Paramedic Level

This appendix should be used for suspected acute stroke. This tool will be used to triage patients to the appropriate receiving facility, and provide a template for passing information to the receiving facility.

1. Perform a validated stroke assessment such as the MEND exam.

2. If assessment is positive for stroke, and onset of symptoms can be established within the past 4.5 hours, then determine the appropriate destination:
    a. If transport time to a Primary Stroke Center is less than 30 minutes, it is recommended that all of these patients be transported directly to the Primary Stroke Center
    b. If transport time to a Primary Stroke Center is greater than 30 minutes, then transport to the nearest stroke capable hospital.

3. Consider the use of air transport if it will facilitate the arrival of the acute stroke patient for treatment within 4.5 hours to a Primary Stroke Center or stroke capable hospital.

4. If transport to a Primary Stroke Center or stroke capable hospital cannot be achieved to arrive within 4.5 hours, then transport to the closest appropriate facility.

5. In all instances, those patients requiring immediate hemodynamic or airway stabilization should be transported to the closest appropriate facility.

6. Complete the fibrinolytic checklist-Appendix F

Levels of Stroke Care Capacity:

Comprehensive Stroke Center: Hospitals that have been certified by the Joint Commission-accredited acute care hospitals and must meet all the criteria for Primary Stroke Certification

Primary Stroke Center: Hospitals that have been certified by the Joint Commission on Hospital Accreditation or an equivalent agency to meet Brain Attack Coalition and American Stroke Association guidelines for stroke care

Stroke capable hospital: Hospitals that have the following:

- rt-PA readily available for administration
- Head CT, laboratory and EKG capabilities 24/7
- Process in place for transporting appropriate patients to a Primary Stroke Center
- Stroke protocol in place that follows American Stroke Association guidelines
- Emergency department coverage by physician, or advanced practitioner

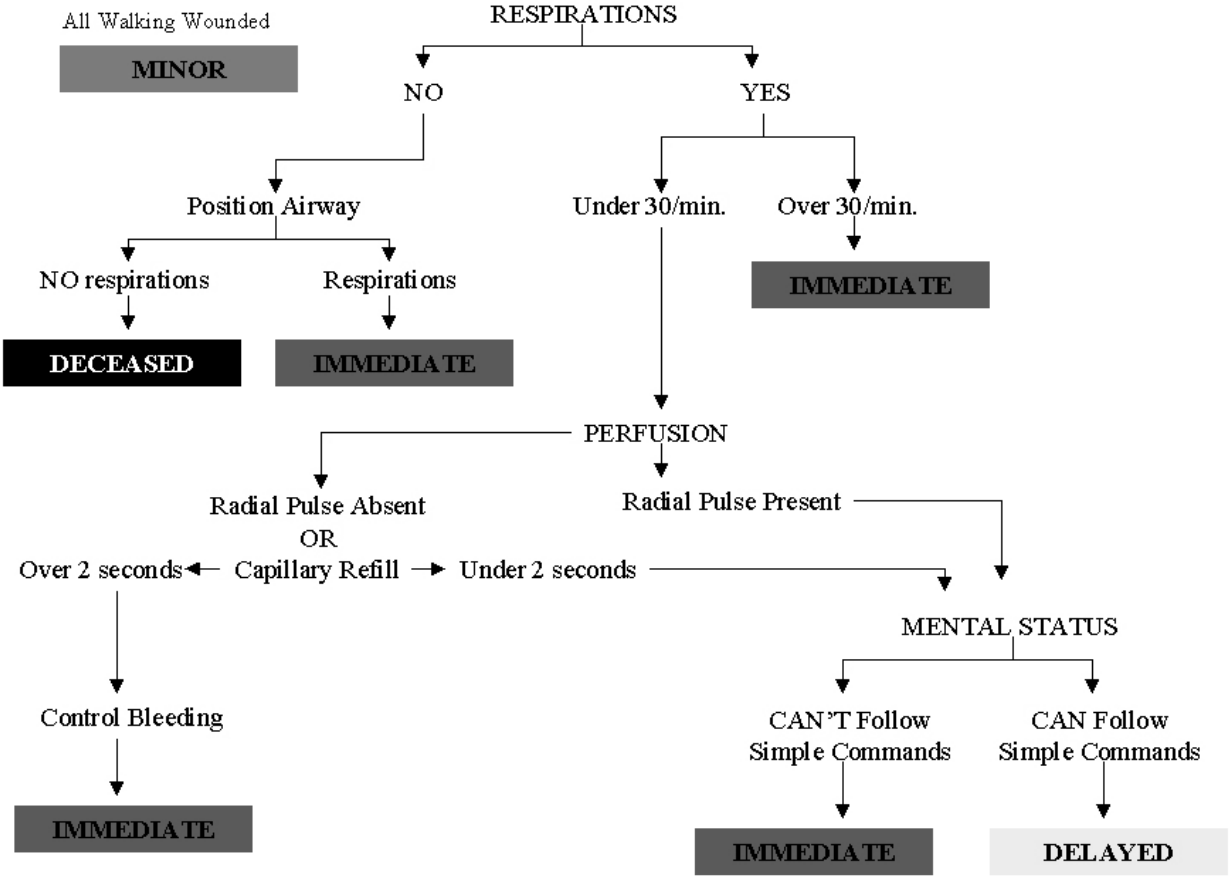
Appendix H: Simple Triage and Rapid Treatment (START)

S T A R T

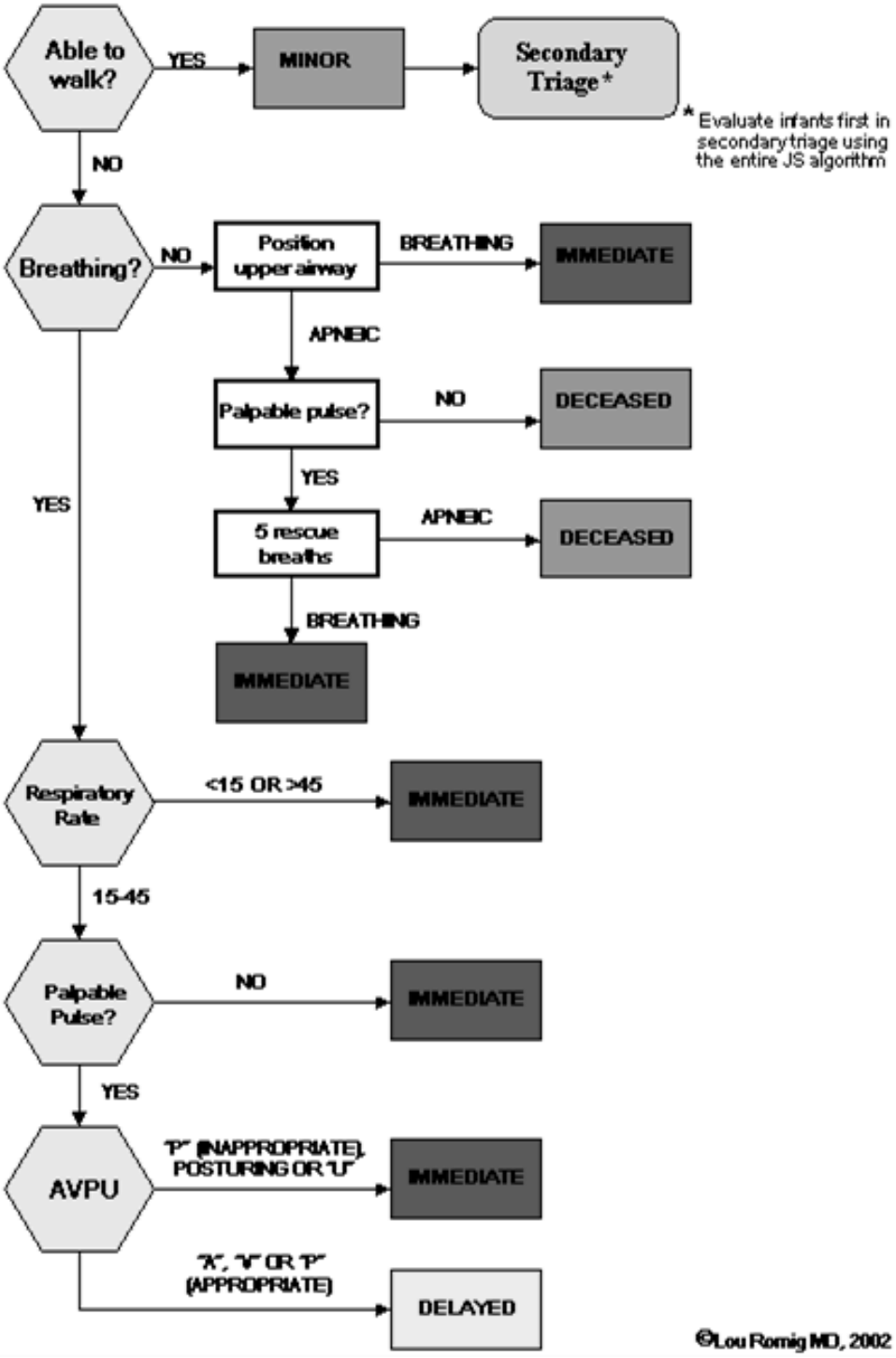
The following are guidelines for initial tactical triage using the START method. START is most useful in initially clearing the disaster zone where there are numerous casualties. **It focuses on respiration rate, perfusion, and mental status and takes under one minute to complete.** Once the patient moves toward a higher level of care (evacuation), a more detailed approach to triage may be needed.

Respirations
Perfusion
Mental Status

Green = Minor/Ambulatory
Yellow = Delayed
Red = Immediate
Black = Deceased/Expectant



Simple Triage and Rapid Treatment – Pediatric JumpSTART



Appendix I: Suspected Abuse/Assault/Neglect/Maltreatment

a) Provide reassurance
b) Contact local law enforcement if not present
c) Provide appropriate medical care per protocol
d) Do not burden patient with questions about the details of the assault
e) Be alert to immediate scene and document what you see.
f) Touch only what you need to touch at the scene
g) Do not disturb any evidence unless necessary for treatment of patient. (If necessary to disturb evidence, document why and how it was disturbed.)
h) Preserve evidence; such as clothing you may have had to remove for treatment, and make sure that it is never left unattended at any time, to preserve "chain of evidence"
i) Provide local referrals as available
j) Communicate vital information only – additional info can be given to receiving RN and/or Physician on arrival
k) Record observations and factual information on run report

Pediatric Considerations:

a) Approach child slowly in order to establish rapport (except in life-threatening situations), then perform exam
b) Provide appropriate medical care per protocol
c) Genital exam only if indicated in the presence of blood, known or obvious injury and or trauma
d) Interview parents separate from child, if possible
e) Transport if permitted by parents
f) If parents do not allow transport, notify law enforcement for assistance

Report all suspected abuse to the pediatric and dependent adult hotline at 1-800-362-2178 within 24 hours of your contact of the patient. This will be an oral report only. Within 48 hours of oral reporting, you must submit a written report for all suspected abuse to the Iowa Department of Human Services

Appendix J: Guidelines for EMS Provider Initiating Organ and Tissue Donation at the Scene of the Deceased

1. All appropriate patient care protocols will be enacted to assure patient care is provided according to prevailing standards.

2. If resuscitation efforts are unsuccessful or if upon arrival the patient is deceased and without indications to initiate resuscitation, then on-line medical direction will be contacted to confirm that no further medical care is to be given.

3. As per Iowa Code 142C.7 a medical examiner or a medical examiner's designee, peace officer, fire fighter, or emergency medical care provider may release an individual's information to an organ procurement organization, donor registry, or bank or storage organization to determine if the individual is a donor.

4. As per Iowa Code 142C.7 any information regarding a patient, including the patient's identity, however, constitutes confidential medical information and under any other circumstances is prohibited from disclosure without the written consent of the patient or the patient's legal representative.

5. At least one EMS provider should remain at the scene until the appropriate authority (medical examiner, funeral home, public safety, etc.) is present.

6. Contact Iowa Donor Network at 800-831-4131

Appendix K: Guidelines for EMS Providers Responding to a patient with special needs

This protocol is not intended for interfacility transfers

These guidelines should be used when an EMS provider, responding to a call, is confronted with a patient using specialized medical equipment that the EMS provider has not been trained to use, and the operation of that equipment is outside of the EMS provider's scope of practice. The EMS provider may treat and transport the patient, as long as the EMS provider doesn't monitor or operate the equipment in any way while providing care.

When providing care to patients with special needs, EMS personnel should provide the level of care necessary, within their level of training and certification. When possible, the EMS provider should consider utilizing a family member or caregiver who has been using this equipment to help with monitoring and operating the special medical equipment if necessary during transport.

Some examples of special medical devices:

- PCA (patient controlled analgesic)
- Chest Tube

Appendix L: EMS Approved Abbreviations

ā	before	ET	endotracheal	PAT	paroxysmal atrial tachycardia
ABC	airway, breathing, circulation	ETOH	alcohol	PCR	patient care record
		fib	fibrillation	PE	physical exam, pulmonary edema
ALS	advanced life support	fl	fluid		
AMI	acute myocardial infarction	fx	fracture	pedi	pediatric
		GI	gastrointestinal	PERL	pupils equal, reactive to light
amps	ampules	gm	gram		
ASA	aspirin	gr	grain	PJC	premature junctional
AT	atrial tachycardia	gt(t)	drop(s)	po	by mouth
AV	atrioventricular	h, hr	hour	pr	per rectum
bicarb	sodium bicarbonate	hx	history	prn	whenever necessary, as needed
BID	twice a day	ICU	intensive care unit		
BLS	basic life support	IM	intramuscular	PVC	premature ventricular contraction
BP	blood pressure	IV	intravenous		
BS	blood sugar	Kg	kilogram	q	every
c̄	with	KVO	keep vein open	QID	four times a day
CAD	coronary artery disease	L	liter	R	respirations
		LOC	level of consciousness	R/O	rule out
CC	chief complaint			RN	registered nurse
cc	cubic centimeter	LR	lactated ringers	Rx	treatment
CCU	coronary care unit	*M*gtt	microdrip	s̄	without
CHB	complete heart block	MD	medical doctor	SC	subcutaneous
CHF	congestive heart failure	mEq	milliequivalents	Sec	second
		mg	milligram	SL	sublingual
cm	centimeter	MI	myocardial infarction	SOB	shortness of breath
CNS	central nervous system			SQ	subcutaneous
		min	minute	STAT	immediately
c/o	complains of	ml	milliliter	s/s	sign, symptoms
CO	carbon monoxide	mm	millimeter	SVT	supraventricular tachycardia
C02	carbon dioxide	MS	morphine sulfate		
COPD	chronic obstructive pulmonary disease	NaCl	sodium chloride	Sx	symptoms
		NaHCO3	sodium bicarbonate	TIA	transient ischemic attack
CPR	cardiopulmonary resuscitation	NG,N/G	nasogastric		
		nitro	nitroglycerine	TID	three times a day
CSF	cerebral spinal fluid	NPO	nothing by mouth	TKO	to keep open
CVA	cerebral vascular accident	NS	normal saline	VF	ventricular fibrillation
		NSR	normal sinus rhythm	w/s	watt second setting
D/C	discontinue	NTG	nitroglycerine	x	times
DOA	dead on arrival	0_2	oxygen	y/o	years old
D5W	5% dextrose in water	OB	obstetrics		
Dx	diagnoses	OD	overdose		
ED	emergency department	OR	operating room		
		P	pulse		
EKG/ECG	electrocardiogram	p	after		
Epi	epinephrine	PAC	premature atrial contraction		
ER	emergency room				

Appendix M: Guidelines for New Protocol Development

Making a decision to develop a new protocol or evaluate an existing one should be based on a rational process. Questions that should be asked and answered when considering a new drug therapy or procedure are as follows:

Key Questions for any New Protocol

1. Is the drug therapy or procedure medically indicated and safe?
2. Is it within the scope of practice for the provider?
3. How specifically will this protocol benefit patient care?
4. What specifically is needed to implement this protocol (education/training, medical director protocol development/authorization, equipment needs, etc.)?
5. How will this protocol impact operation?
6. What is the opinion of providers concerning this protocol?
7. Does the medical community support this protocol change?
8. What are all the costs versus benefits associated with implementation and maintenance?
9. What are the medical-legal implications?
10. What ongoing provider involvement such as skills maintenance and continuous quality improvement is necessary?
11. How will success be measured?

Rational Protocol Development Process to Make the Right Protocol Decision

1. Study the issue thoroughly
2. Identify key questions
3. Compare with goals
4. Assess fit with system
5. Cost benefit analysis
6. Identify measuring tools

Stakeholders in this process are recognized to include, but not be limited to:

1. Medical direction (on-line and off-line)
2. Educators/training programs
3. Regulators of policy and rules
4. Service directors
5. Service providers
6. Consumers
7. Third party payers